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RAILWAY AGE

Mr. Whitney Plays the Game Of the Waterways' Bloc

Politics has always made strange bedfellows, but probably never in history a stranger combination than that of a group of deluded railroad men ganging up with the very politicians who are most desirous of putting the railroads out of business in order to defeat proposed transportation legislation now before Congress. It is a tribute to the intelligence of the great majority of organized railroad employees, and to their leaders, that they have no part in this suicidal marriage with the very forces most energetically endeavoring to ruin railroad employment by diverting traffic to waterways.

How Many Trusting Followers Has Mr. Whitney?

The railway labor leader who has effected this miscegenation is A. F. Whitney, the head of the Brotherhood of Railroad Trainmen. However, Mr. Whitney is too well understood even by the members of his own organization (perhaps one might almost say *especially* by the members of his own organization) to be very effective as a pied piper. "Follow me, you dumbbells, to build up the waterways and ruin the railroads," he says in effect. And, sure enough, only the dumbbells follow him; and not very many of them—because even the dumbbells in the railroad industry are getting on to Mr. Whitney.

Every pied piper plays a little tune to attract his followers. The tune doesn't fool the piper; he is not interested in music, but in a display of his power. The tune is meant to beguile the followers—to hypnotize them while the piper works his will upon them. And Piper Whitney has a tune. It is "The Transportation Bill, Without the Harrington Amendment, Will Throw 200,000* Railroad Employees Out of Work."

What is the Harrington amendment, who is its author and who are its supporters? The amendment provides that no railroad consolidation shall be approved if its result will be "unemployment or displacement of employees of the carrier or carriers, or in the impairment of existing employment rights of said employees." The amendment doesn't say that if any employee is displaced through consolidation he must be compensated —instead it says he must not be displaced at all. The amendment doesn't say that a consolidation may be approved, even if it guarantees the jobs of all employees of the roads being merged. Instead, it says that the consolidation cannot take place if the "employment rights" of any employee would be impaired. That is a rather vague term, but everybody familiar with railway labor matters knows that when two seniority rosters are merged almost everybody on the roster finds his number higher than it was before. Maybe the job of each is as safe or even safer than before, but there is always some dynamiter using such technicalities to start trouble; and it is a safe prediction that this is what would happen in this instance. The real effect of the Harrington amendment, in short, is *to make impossible any consolidations whatsoever.*

Prevent Economy on the Railroads, So Rivals Can Filch Their Traffic

But the amendment does not prohibit consolidations of water carriers, or truck lines. As far as Congressman Harrington is concerned, they may merge into any combination they find most economical. And it is not any mystery at all why Congressman Harrington has striven to put the railroads in this anti-consolidation straight-jacket while leaving their competitors out of it. Congressman Harrington is an inland waterways fanatic, bent on the diversion of railroad tonnage to the barges. Tie the railroads hand and foot so they cannot reduce the cost of their service and leave the water lines to merge and economize all they can—to the end

* Other estimates by Mr. Whitney's waterway friends in Congress run all the way from 225,000 to 400,000.

that the water lines' rates can be brought lower and lower, diverting more and more tonnage from the railroads. All during the debate on the transportation bill in the House of Representatives last summer Congressman Harrington was in there *fighting to prevent the regulation of inland waterway carriers by the Interstate Commerce Commission.* That is the kind of "friend of railroad labor" that Mr. Whitney wants railroad employees to get behind and root for.

Any railroad man knows that it is the lack of regulation of these water carriers and the subsidies they enjoy which have enabled them to take away so much tonnage from the railroads, thereby reducing the opportunities for jobs on the railroads. So any politician who pretends that he is interested in the welfare of railroad employees, while he demonstrates that he wants to see all the freight possible moved by waterway, should not be able to fool anybody not confined to an institution for the mentally deficient. What these waterway politicians are trying to put over is to prevent railroad consolidations which might make railroad service more economical and efficient and hence more likely to win traffic away from the waterways. **They pretend to be trying to save railroad jobs in consolidations (where liberal compensation is provided for employees who may be displaced)—in order that they may the more effectively eradicate the same jobs by competition, where no compensation is possible for employees whose jobs are destroyed.**

The fact of the matter is that, in Congress last summer, these waterway politicians were desperate. The merits and demerits of putting all forms of transportation under the equal regulation of the Interstate Commerce Commission had been debated at such length that a majority of the members of Congress really understood the issue. Leaders in Congress who have won the respect of their fellow-members because of their intelligence and integrity were, almost to a man, supporting the legislation calling for the regulation of water carriers. Organized railway labor in an overwhelming majority was supporting this legislation. The bloc which has always fought for special favors for inland waterway transportation saw itself licked, unless some red-herring trick could be pulled to confuse and divide the supporters of the proposed legislation.

Setting the Trap for Railway Labor

And so these clever gentlemen decided that the place to try their trickery was upon railway labor. Divide and conquer. And who among the leaders of railway labor is the obvious man to approach if anybody wants to start a maverick movement? Of course, it is A. F. Whitney, who co-operates in nothing with his fellow labor executives—and who had denounced the "committee of six" report. To be sure, neither Mr. Whitney nor his like-minded followers could be expected to come out directly and demand special favors for waterway transportation. But get them to go along with some unfavorable amendment which would make the whole transportation bill so unpopular that nobody would care whether it passed or not—such was the strategy. So Mr. Harrington and his fellows in the waterways' bloc very cleverly thought up the amendment regarding consolidation which would serve both (1) as bait to Mr. Whitney and easily-deceived railroad employees and (2) to make the transportation bill so unattractive to other interests desiring its passage that they would lose interest in it.

So far the trick has succeeded only to the extent of enlisting Mr. Whitney's support, and that of such of his followers who are completely under his domination. And that is as far as it will go, if the real facts of the situation are brought energetically to the attention of railroad employees and to the *true* friends (*not* the waterways' bloc) of railway labor in Congress. Inasmuch, however, as the waterways' bloc and Mr. Whitney's stooges are propagandizing so strenuously on the alleged damage the transportation bill (S. 2009) will do to railway labor if the Harrington amendment is not adopted, it might be advisable for those who possess the true facts to circulate them among railway employees and their friends somewhat more thoroughly and energetically than they are now doing.

Consolidation Would Save Far More Jobs Than It Would Endanger

The essential facts of the situation may be briefly summarized as follows:

1—*Some degree of consolidation is necessary to protect railroad jobs, rather than to destroy them.* For instance, a territory may be served by two or more railroads, when so much traffic has been diverted to trucks and waterways that none of the railroads can earn enough to continue all its lines in operation. In such a case, it would obviously be to the advantage of the employees to consolidate the railroads, thereby saving enough operating expenses to enable most of their lines to be kept in operation instead of forcing abandonment of entire railways—as has been actually threatened in such cases as that of the Rutland, and as probably would be done in many cases if consolidation were completely prohibited, as provided by the Harrington amendment.

2—*The proposed legislation, without the Harrington amendment, provides ample protection of railroad employees whose jobs might be threatened by consolidation.* A specific provision for such protection is in the bill as passed, and the standard railway labor organizations have a standing agreement with the railroads providing generously for the compensation of employees who lose their jobs or are demoted because of consolidation. (It is to be noted that a railroad which has to stop operation because it cannot make ends meet makes no such allowances to employees—a thought the supporters

of the Harrington amendment had better be turning over in their minds.)

3—*Consolidation as a possible source of harm to railroad employees is nothing but a demagogic bugaboo anyhow, trotted out to frighten the ignorant and the gullible.* Experience has shown (see *Railway Age,* February 17, page 313) that railroads pay out in wages around 45 per cent of all the money they take in, whether in good times or bad; and they cannot long pay labor any larger percentage of their gross earnings and stay in business at all. The purpose of consolidation is to make railway service more economical, and thereby enable the roads to make rates which will permit them to capture traffic which they do not now enjoy. By thus increasing railroad revenues, the amount paid out by the railroads in total wages would be bound to increase proportionately to the benefit of railroad employees. Meantime, the provisions of the "Washington Agreement" for the compensation of employees who might lose out temporarily while consolidations were in process (see *Railway Age,* May 30, 1936, page 885) are so generous that the economies of consolidation can be brought about without any suffering by individual railroad employees.

Wholesale Consolidations Not in the Cards—Law or No Law

Furthermore, the consolidation features of the pending transportation bill are *the very opposite of a wholesale consolidation scheme.* They would simply permit consolidations here and there, as it might be found advantageous and convenient to work them out. There is no provision in the bill for any sudden and wholesale consolidation of all the railroads into a few systems; and there are no forces operating anywhere in the country today which are likely to bring about swift and gigantic mergers on a scale calculated to throw large numbers of men out of work.

But, while the forces for consolidation are not working to hurt railroad employees, and cannot do so, **the forces of unfair competition are working every day in the year to cause the railroads to pull off trains.** Mr. Whitney, in asking his followers to get terrified by the consolidation spook, is at the same time asking them to overlook the grim reality of subsidized and unregulated competition; and is even asking them to *team up with this competition and play its game and strengthen it,* all out of fear of a non-existent booger.

The phonyness of this consolidation specter, if it is not sufficiently exposed by the above facts, is still further advertised by some of its other friends. One of these is Congressman Culkin of Northern New York —a gentleman whose major public utterances are filled with bitter prejudice against the railroads and a reckless affection for waterway transportation. He, like many of the other politicians who are favoring this Harrington amendment, is a waterway enthusiast first, last and all the time. How any railroad man could for a moment believe that he would get anything that would make his source of livelihood more secure from such men is just not understandable. Have such innocents never heard the saying of Aeneas, when the Greeks left the wooden horse before the walls of Troy: "I fear the Greeks, even when they bring us presents"?

Congressman Schulte, Transportation Authority

But it is not only clever enemies of railroad traffic and jobs who are supporting this Harrington joker. Behind it also is a considerable amount of plain ignorance. Consider the speech of Congressman Schulte of Indiana in the House of Representatives on February 8. We quote below (in small type) a few gems from the tongue of this orator, followed by the real facts which are matters of record and which the learned gentleman could just as easily have gotten as he did the misinformation he purveyed. We quote:

"Who is causing all this unemployment in the railroad field? Twenty years ago the railroads employed over 2,000,000 men . . . Today there are but 900,000 railroad employees in the United States, yet the railroads are moving more freight today than they did in 1920. This means that just 1,100,000 railroad men have lost their jobs because of improved conditions on the railroads, engines now pulling 100 cars, trains moving faster, yet railroad rates are higher today than they have ever been . . . "

The fact is that in 1939 the railroads handled less than 333 billion revenue ton-miles of freight, as compared with more than 410 billion ton-miles in 1920. That is, *there has been a decline of about 19 per cent in railroad freight traffic since 1920.* In addition, *there has been a decline of 51 per cent in the volume of passenger traffic.* As for railroad rates—it so happens that during most of 1920 the railroads were operating under a government guaranty with rates recognized to be inadequate, but rates were raised in the latter part of 1920 when the roads were put "on their own" and these advances were fully reflected for the first time in the statistics for 1921—and these statistics disclose for that year an average freight rate of 1.275 cents per ton-mile. In 1939, the average freight rate was approximately 0.982 cents, *a reduction from 1921 of about 23 per cent.* Moreover, *since 1921 the average rate for passenger travel has undergone a reduction of 40 per cent.*

It is, of course, impossible for Congressman Schulte or any other legislator, however well-intentioned, to correct a set of conditions of which he is so ignorant as Mr. Schulte has disclosed himself to be regarding railroad conditions.

In sum, then, the Harrington amendment, upon close analysis, discloses the following: (1) a considerable ingredient of unadorned ignorance of the facts; (2) the machinations of some very clever waterway politicians who wish to divide railroad employees in order

to continue filching their means of livelihood from them; (3) a railway labor leader who is so jealous of and non-co-operative with his fellow labor executives that he falls easy prey to any influences which seek to use his dislike for other labor leaders as a device for rendering ineffective the political strength of railway labor in defense of railroad traffic and employment. The Harrington amendment, in short, is a Mickey Finn, a good whiff of which should be sufficient to cause any railroad employee or any intelligent legislator quickly to toss the whole mixture into the sink.

Indexes to Volume 107

The indexes to the latest volume of the *Railway Age,* July to December, 1939, are now ready for distribution and copies may be had by those subscribers desiring them. Requests should be addressed to the Circulation Department, *Railway Age,* 30 Church Street, New York. Subscribers who have in previous years made application for the index need not apply again; they will continue to receive it as long as they continue to subscribe.

Shadow-Boxing With Transportation Chaos

The Interstate Commerce Commission conclusions to its 10th Supplemental Report in Ex Parte MC 21 decided January 25, predicates the minimum rate order primarily upon the allegation and hearsay evidence of motor carriers, that present rates are unduly preferential to key points and unduly prejudicial to other points, and orders the key point rates increased to the rail level—notwithstanding that it has consistently held that such evidence is without probative value.

Where, in all the Commissions' 50 years' existence, is there a minimum rate order planted upon evidence of this kind except in the more recently decided motor carrier cases, and where, in the Motor Carrier Act, is there any injunction to depart from Commission and Court precedent? Besides, the Commission and the Courts have consistently held that an order to remove prejudice and preference must give the carrier the option as to whether low rates shall be increased or high rates reduced. There is no finding that present truck rates are not compensatory.

Certain railroads recently filed reduced rates to meet these truck and forwarder rates. These same motor carriers protested these reduced rates, and informed the Commission that the freight forwarders had *agreed* that they would also increase their rates to the "normal" rail basis, which was in existence long before motor transport was even thought of. The railroads' response to the motor carriers' protest stated that they would withdraw their reduced rates when the forwarders carried out their *agreement* with the trucks. The entire Commission permitted the railroads' reduced rates to become effective, but ordered an investigation into their lawfulness, and now it would seem that Division 5 has pre-judged the railroads' reduced rates without the formality of a hearing—indicating that it is willing for the Commission to become the fourth party to the *agreement.*

It is not difficult to understand why the trucks and freight forwarders, "who are already daily flouting the spirit of the law," would so readily become a party to this *agreement,* because it raises their "pick-and-choose" ceiling, but how is it in the public interest for the Commission, by its order, to participate in such an "agreement"?

It is an even deeper mystery why the railroads should participate, thus giving their competitors more "cream" on their outbound traffic, to use against the railroads in making further inroads into railroad traffic, by quoting low rates on return loads.

As an example of how the trucks are "working" on the railroads, the 38th Petition in MC 21 proposes a rate of 17 cents on paper stock from Detroit to Mishawaka, a distance of 176 miles. It is frankly admitted in the petition that:

"The rate . . . will give interested carriers an opportunity to return a part of their equipment . . . loaded."

A rate of 22 cents on foodstuffs is also proposed from Whiteland to Detroit, a distance of 287 miles, explaining:

"It is alleged that motor carriers cannot participate in this traffic unless they meet the railroad rate."

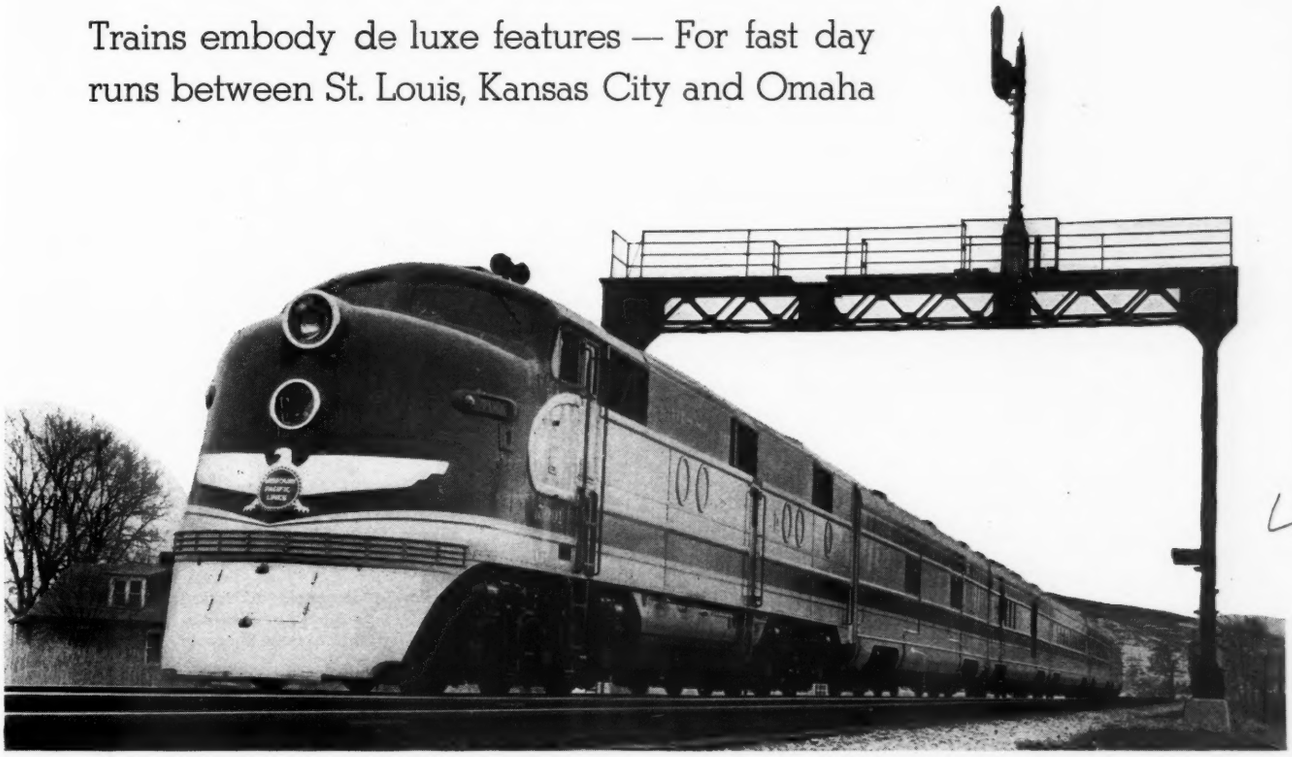
The only justification offered is that the trucks desire to make the same rate as the railroads, regardless of truck operating costs—disregarding, moreover, the fact that the truck rate contemplates half the quantity and gives the shipper and receiver door-to-door service and free loading and unloading.

It would seem that the railroads could profitably analyze the development of the motor transportation industry since the Motor Carrier Act, 1935, became effective. It is probably within the power of the railroads (given an attitude by the I. C. C. as reflected in the Naval Stores Case), to take away from the trucks the opportunity to "pick-and-choose" traffic; and with no "pick-and-choosing," the opportunity to "chisel" railroad traffic would vanish.

Fact-facing realism by the railroads and the Commission could have prevented present wasteful chaos in the transportation business, and such realism alone can end it. Chaos, like Godoy, has kissed the railroads and the I. C. C. in the 14th round and so they continue to shadow box with it.

Missouri Pacific Gets Aluminum Streamliners from A. C. F.

Trains embody de luxe features — For fast day runs between St. Louis, Kansas City and Omaha



THE Missouri Pacific has recently accepted formal delivery from the American Car and Foundry Company of two six-car streamline trains which are outstanding examples of modern construction, combining to an unusual degree refinements in design, careful workmanship, beauty of architectural and color treatment, and interior appointments and conveniences well adapted to meet the most exacting passenger requirements. The cars, made primarily of strong aluminum alloys, were constructed at the car builder's plant at St. Charles, Mo. The two Diesel-electric locomotives, each developing 2,000 hp. and weighing about 300,000 lb., were built by the Electro-Motive Corporation, La Grange, Ill. Following an extensive exhibition tour on the Missouri Pacific lines, the two trains, christened The Eagle, will be placed in service March 10 on fast day runs between St. Louis, Mo., Kansas City, Mo., and Omaha, Neb., as shown on the accompanying schedule.

In addition to a Diesel-electric locomotive, each of the new Eagle trains consists of one mail-storage car, one baggage-mail car, one coach, one de luxe coach, one diner-car-lounge car and one parlor-observation car. The two head-end cars are 72 ft. 10 in. long and the other four cars 84 ft. 6 in. long over the coupler pulling faces; the width over side posts being 10 ft.; roof height above rail, 13 ft. 6 in., and truck wheel base, 9 ft. The table of individual car weights indicates a total dry weight for the six cars of 596,980 lb., a saving of roughly 40 per cent as compared with equivalent cars of former conventional heavy steel construction. The total shell weight of the six cars is 130,070 lb. The total seating capacity in the four passenger-carrying cars is 230.

Description of the Eagle's Car Equipment

Car equipment for the Eagle trains, built by the American Car and Foundry Company especially to meet the operating requirements of the Missouri Pacific, was styled by Raymond Loewy, industrial designer, New York. The cars are so designed that with the locomotive they appear as a unit streamline train, this effect being accentuated by the exterior color treatment. Against a background color of deep green-blue, a continuous horizontal panel runs from near the front of the locomotive to the rear end of the observation car. Accentuated by means of creamy white lines, the light gray panel is defined by two broad bands of polished aluminum. A unique window treatment, varying oblong 5-ft. wide windows with round port holes, relieves any sense of monotony.

A focal point of the exterior design appears in the

Schedule of New Missouri Pacific Eagle Streamliners, Effective March 10

Westbound		Eastbound	
Lv. St. Louis	8:45 a. m.	Lv. Omaha	8:40 a. m.
Ar. Kansas City	1:45 p. m.	Ar. Kansas City	12:30 p. m.
Lv. Kansas City	2:05 p. m.	Lv. Kansas City	12:40 p. m.
Ar. Omaha	5.55 p. m.	Ar. St. Louis	5:40 p. m.

Interiors of the Parlor-Observation Car—Above: The Observation-Lounge at the Rear End of the Car—Left: In the Parlor Section Looking Toward the Observation Lounge—Below: A Corner of the Stateroom

emblem of the train, which is an eagle. The eagle's wide-spreading polished metal wings blend with the contours of the locomotive and give emphasis to this motif as a symbol of beauty, strength and swiftness. The insignia is repeated on the rear of the observation car in full relief, sculptured in cast aluminum.

The intermediate cars between the observation car and the locomotive have straight ends to permit closing the space between the cars with rubber curtains, thus adding to the unit effect. Each car, however, is independent as far as its equipment is concerned and may be operated in any train in standard Association of American Railroads interchange traffic.

The interior design for the passenger cars is bright, colorful, and attractive, the interior treatment of each car being different but pleasingly harmonious, so that the effect produced in walking through the train is that of a tastefully decorated apartment of several different rooms.

Coaches

The first coach is equipped with seats for 76 passengers and behind it is a second or de luxe coach which provides seats for 61 passengers and offers the maximum in coach service. Features which lend luxury and comfort include deep pile carpeting, reclining chairs, Venetian blinds and hand-loomed curtains. The only basic difference in the two cars is that in the de luxe coach, lounge rooms are provided at either end for men and women passengers who travel longer distances.

The color scheme for the coaches has been developed in varying shades of blue, which is set off by a pale yellow ceiling. From the deep, rich blue tones of the carpet that strike the color keynote, soft, gray-blue is used for the walls above the windows and the baggage rack. The dark blue tone of the chair upholstery repeats the blue of the carpet.

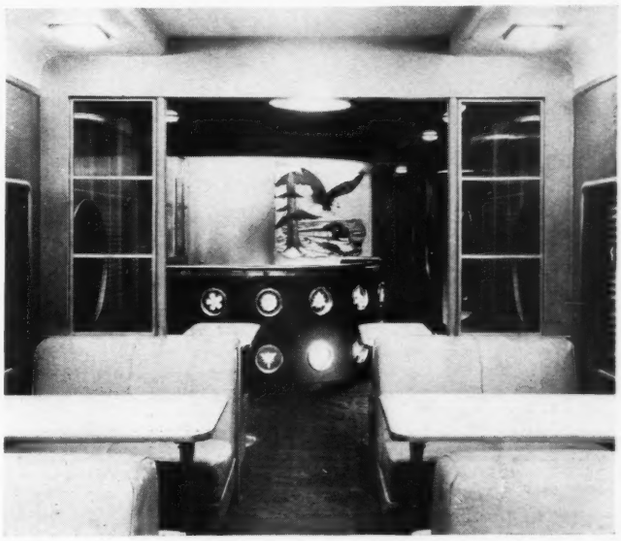
The bulkheads have been given a surface treatment that contrasts deep-blue satin-finish lacquer with a silvery tone which is carried through to the passageway. The significant motif of the eagle insignia, designed in red, gray and blue plastic, appears as an embellishment on the bulkheads. The Venetian blinds are of silver color with hand-loomed texture curtains, horizontally striped with mulberry and blue against a natural background.

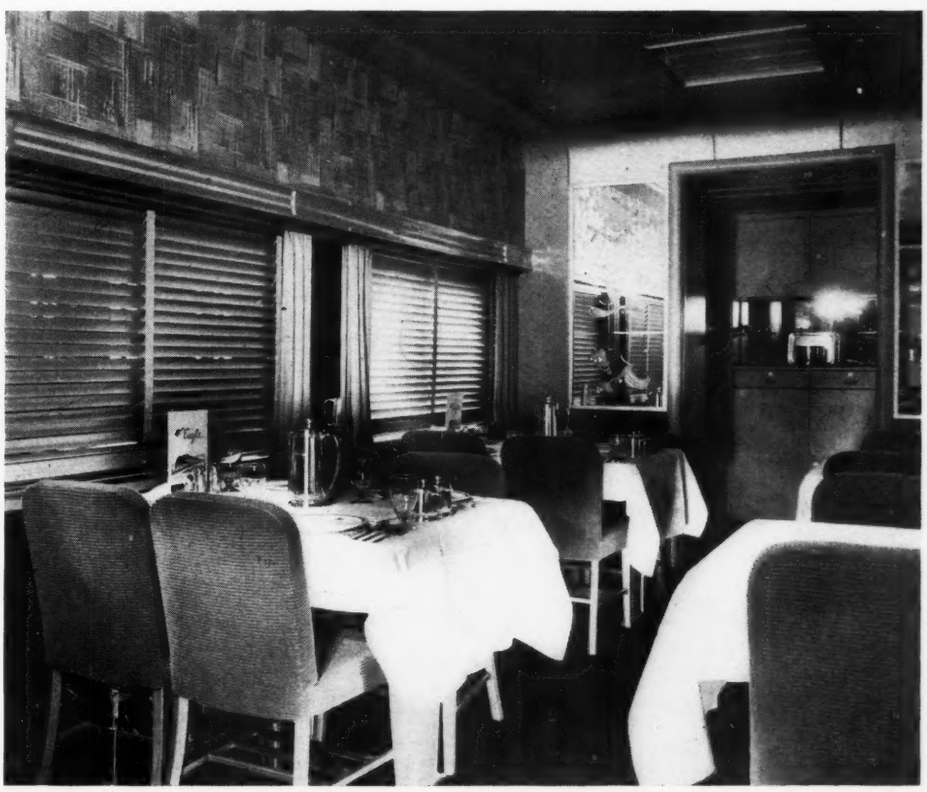
For general car illumination, circular wells of light in the form of specially designed fixtures are set into the ceiling. These give direct light to the aisles and by means of circular spun-aluminum reflectors outlining the fixtures a spread of indirect light is thrown against the ceiling. In addition, there are individually controlled lighting fixtures set flush into the bottom of the baggage rack that provide direct illumination for reading.

The women's lounge has been screened with blue grass-cloth portiers that appear against the silver of the passageway. Soft pastels, such as light blue and dusty pink, are combined in charming effects. There is a sofa upholstered in a wood rose tone, flooring of pale blue rubber with off-white inlay, and a vanity dressing table of glass and aluminum. The men's lounge makes use of more masculine materials, such as knotty pine and wood panelling, pigskin upholstery, and flooring of biege with black inlay.

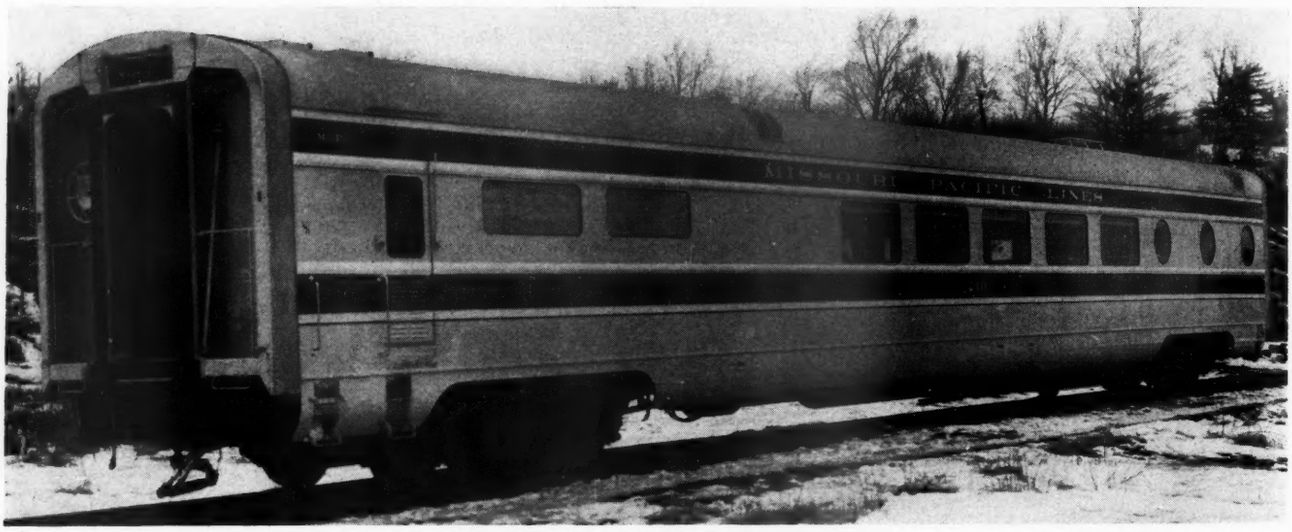
Diner-Bar-Lounge Car

Beginning with the coach end of the diner-bar-lounge car is a modern kitchen completely equipped for diner service. The middle of the car is the dining compart-





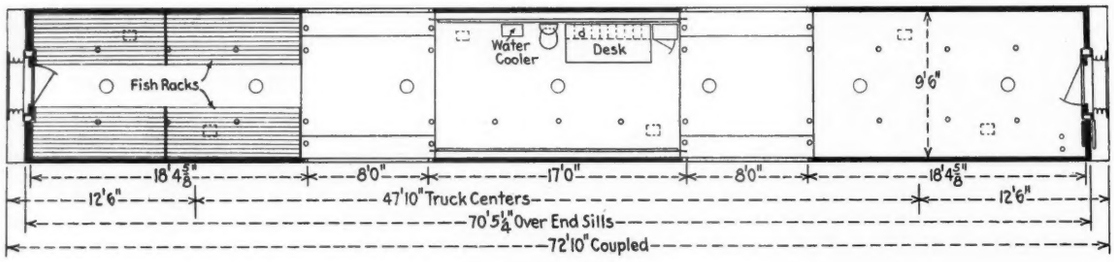
The Diner-Bar-Lounge Car — Above: The Bar at the Rear End of the Car Seen from the Lounge — Below: The Wall Finish and the Color in the Furnishings Contribute to the Beauty of the Dining Room



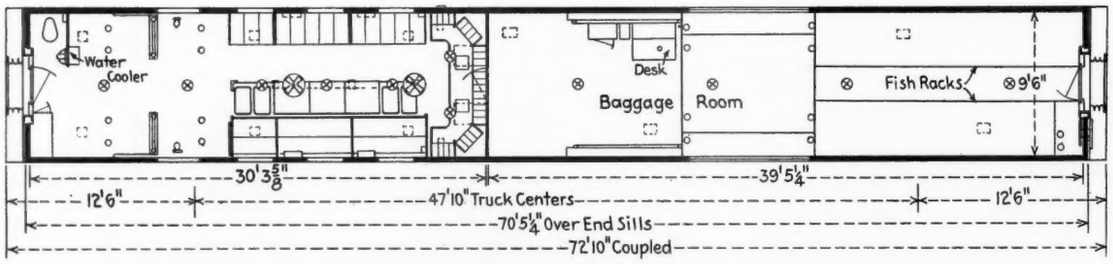
The Diner-Bar-Lounge Car

Scale Weights (Lb.) of Cars for Missouri Pacific Eagle Trains

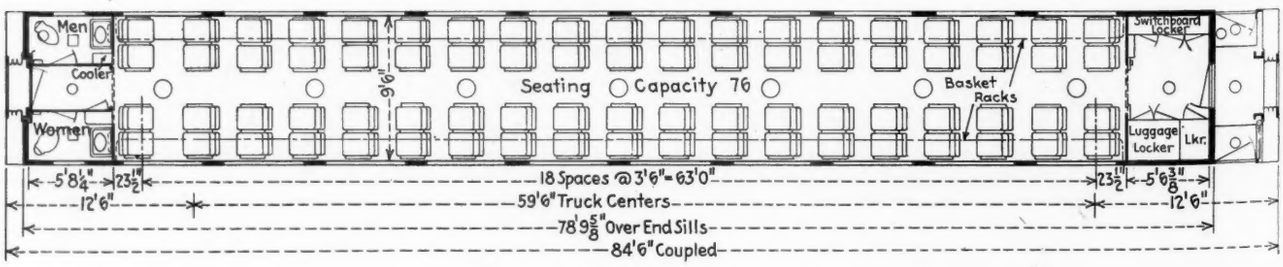
Car	Shell	Body	Trucks	Total dry wt.	Service load	Ready to run	Seating capacity
Mail-storage	21,390	46,210	38,910	85,120	230	85,350	..
Baggage-mail ...	21,210	49,490	38,450	87,940	310	88,250	..
Coach	21,880	67,410	36,650	104,060	2,100	106,160	76
De luxe coach...	22,020	67,170	37,390	104,560	2,100	106,660	61
Diner-bar-lounge .	22,110	75,420	38,120	113,540	10,300	123,840	46
Parlor-observation	21,460	64,150	37,610	101,760	2,100	103,860	47
Total 130,070		369,850	227,130	596,980	17,140	614,120	230



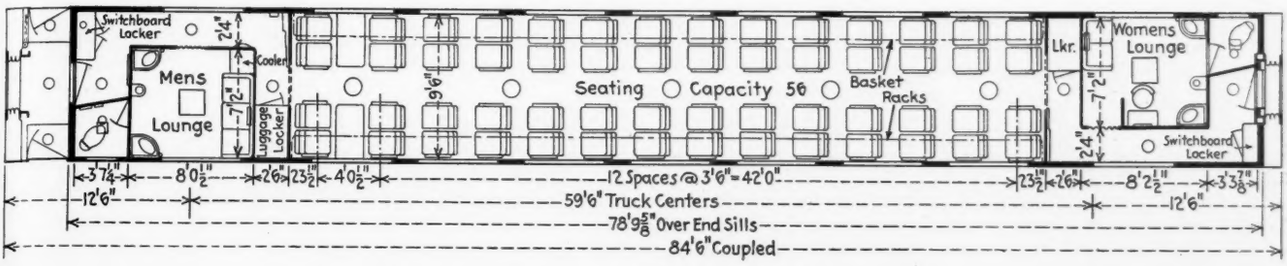
The Mail-Storage Car



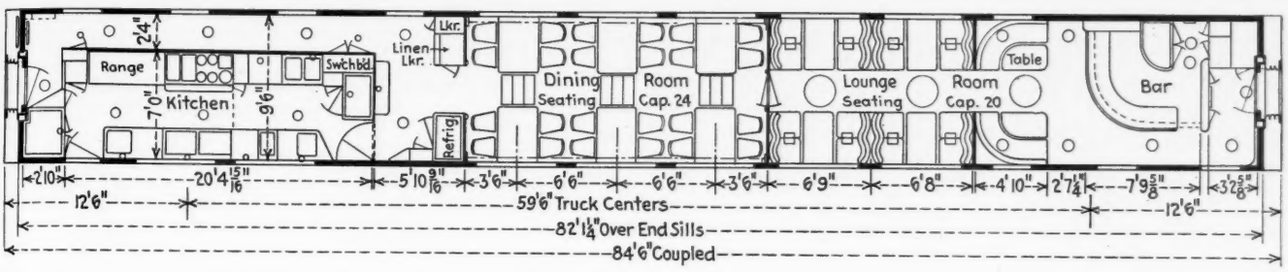
Combination Mail and Baggage Car



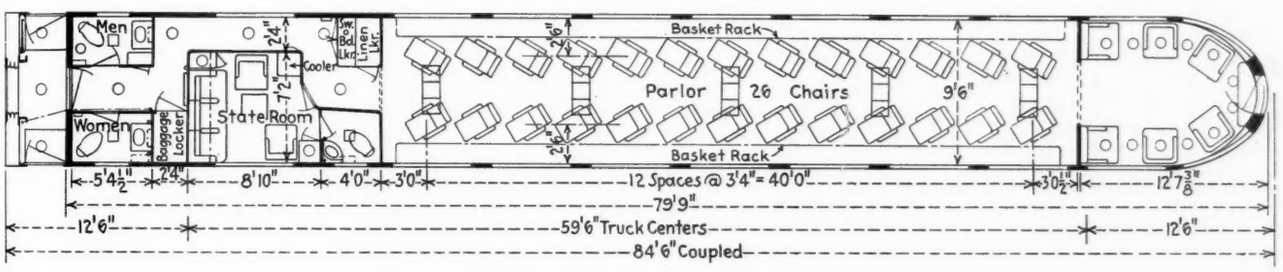
The Straight Coach Has Seats for 76



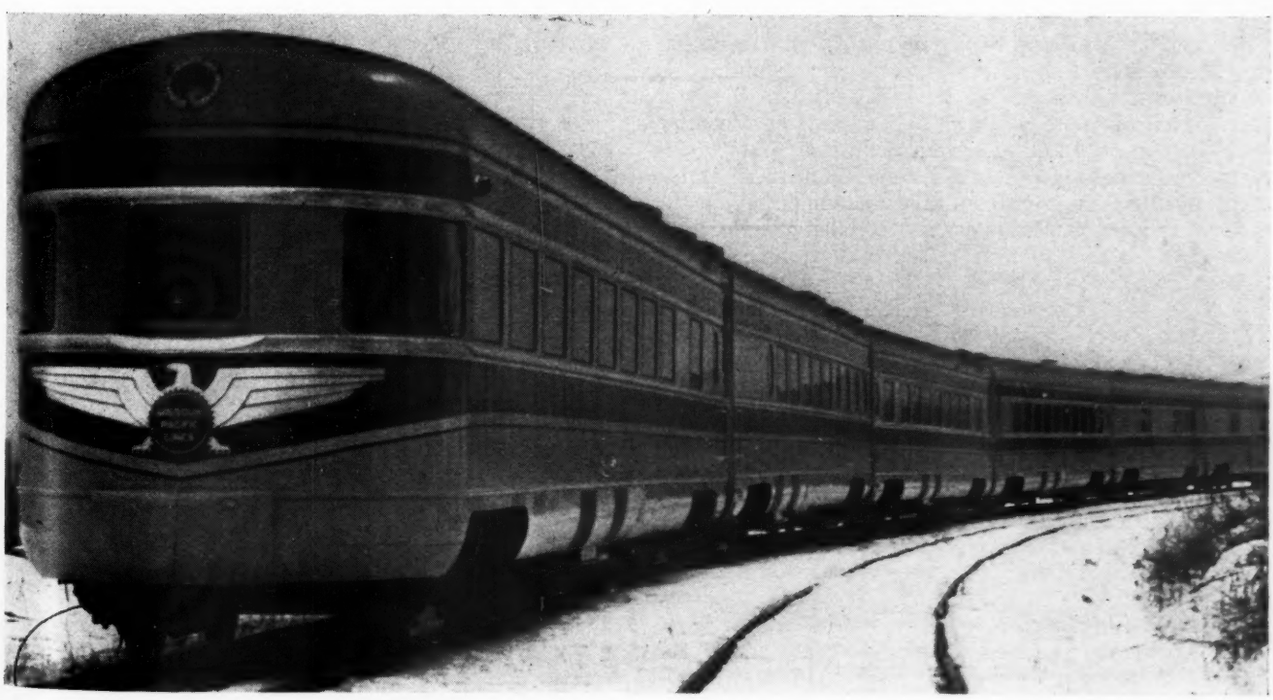
The De Luxe Coach Seats 56 in the Body and Five in the Lounges



The Diner-Bar-Lounge Car



The Parlor-Observation Car Includes a Stateroom



ment with tables seating 24 passengers. Separated from the dining compartment by a false partition is the bar-lounge compartment, accommodating 22 passengers and designed so that it may be used as an additional dining compartment if conditions warrant. At the rear end of the car is the bar which serves not only this car, but also the parlor-observation car which follows.

The dining compartment is separated from the bar-lounge compartment by a swinging door, on either side of which has been set a mirror panel, etched with fruit, flower and vegetable motifs. These mirror panels are used again for decorative effect at the opposite end of the section, thus giving to the entire dining car a quality of brilliant beauty.

The ceiling, which is of silver opalescent lacquer, is curved into the bulkheads to give flowing continuity to the interior architectural and decorative effects. The soft sheen of silver is repeated in the aluminum Venetian blinds that are used for the wide windows. Above the windows is a light trough, accented with strips of translucent plastic, that runs the continuous length of the section. Fluorescent lights are set into this trough which is designed so that light is reflected downward on the tables and upward on the walls above the windows. On this wall section a new decorative fabric with a rose and silver opaline surface has been used, and the upward rays of fluorescent light highlight the beauty and reflecting quality of this luminous material. Ceiling wells of fluorescent light, shaded with large plastic sheets, are used for the general illumination of the dining section.

The general color scheme of the dining car is built around harmonious contrasts, such as gray-blue as used for the side ceiling and silver-rose for the drapery. These tones are strengthened by the deeper tone of the rose-taupe upholstery, dramatic emphasis being given by the rich claret-red of the carpet.

The bar-lounge section is divided by glass panels and achieves a club-like atmosphere with its four intimate bridge groupings in the lounge section and the inviting bar section with its friendly built-in seats. Windows in the lounge section have been grouped to make one large unit. An aluminum frame outlines the window group, with hand-loomed rough-texture curtains of blue fabric at either end. Lighting fixtures that give pleasant, glareless illumination have been set into the lowered side ceiling to throw direct rays on the bridge tables. Glass fixtures that reflect their light against spun aluminum inverted bowls provide additional illumination. Decorative wood pier panels, carved and sandblasted in oak,

Interiors of the De Luxe Coach —Left: The Men's Lounge is Finished in Knotty Pine—Below: The De Luxe Coach and the Straight Coach are Similar

portray two figures of mankind, symbolic of American agriculture and industry.

At the far end of the car a curved bar predominates. Original and attractive in design, it has a facing of bright blue. Set into the blue background are 14 illuminated circles of carved glass, depicting the flowers of the states through which the Missouri Pacific lines pass. The large color mural, painted on aluminum on the back wall of the bar, symbolizes the speed and swiftness of the new streamliner as well as its emblem, the eagle.

In the bar-lounge section, the soft gray tones of the heavy pile carpet act as a foil for the yellow leather upholstery and the blue walls and draperies. Deep yellow on the side ceiling picks up the upholstery color. Plastic table tops are of pearl gray Formica to contrast with the burgundy built-in seats adjoining the bar. For the bulkheads, silver and opalescent glass at one end contrast with mirrors at the other end.

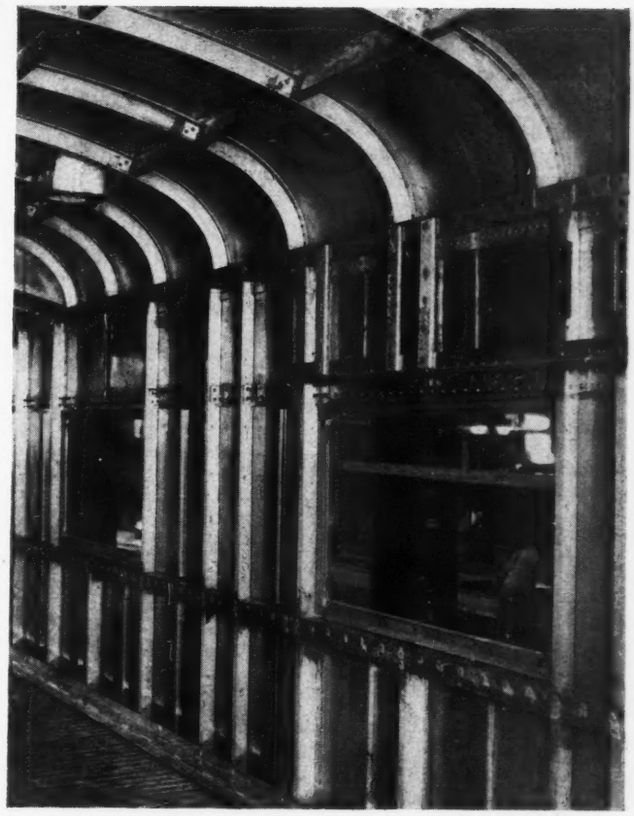
The ceiling of the bar section is lower than the lounge ceiling to give a more intimate feeling in this section. It is painted blue, in effective combination with the old Claro walnut of the walls. There are two built-in sofas, upholstered in burgundy needlepoint. Over these have been set individual lights that carry through as a panel to the vestibule. Above the sofas are port-hole windows.

Parlor-Observation Car

This car accommodates 36 passengers in the parlor-car seats, six passengers in the observation end which is in reality a spacious solarium, and five passengers in a drawing room located at the forward end. In this car the traveler enjoys luxurious comfort in an atmosphere of quiet dignity. For the swivel lounge chairs with their reclining backs, upholstery fabrics have been selected in alternating colors of baxter brown and sea green. Windows are grouped into large areas and window sills have been widened to form a shelf for smoking accessories, books, magazines, etc. The baggage racks are built in. There are individually controlled lights over each seat, while the lighting from center fixtures, designed as triple units, is soft and glareless.

At the observation end, with its built-in radio, there are two fixed sofas and four deep-seated lounge chairs. A clock and a speedometer, designed in aluminum and plastic, decorate the wall.

The color scheme in the parlor car makes use of a pale yellow ceiling, walls and baggage racks of apple green, with a dado of deep sea green. Venetian blinds are of rose-beige, with drapery of a matching rose-beige pattern fabric. The carpet of rose-mahogany adds a strengthening note to the color scheme and carries through to the observation end where the carpet tone is repeated in the dado and offers contrast to the various shades of blue-greens that are used for Venetian blinds, upholstery and drapery fabrics.

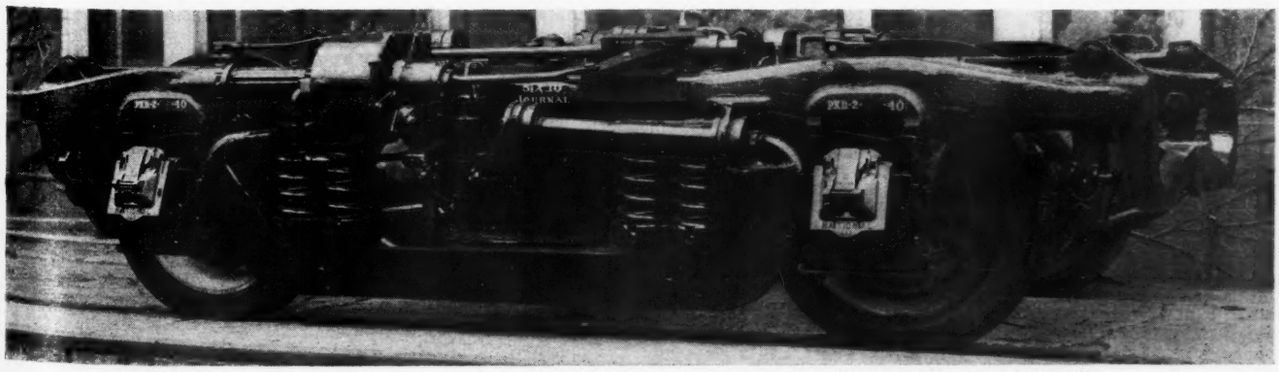


Details of the Side and Roof Framing

The drawing room has all the comforts and appointments of a private club room, with its comfortable built-in sofa, movable chairs, built-in cabinets, and table lamps. One of the walls is panelled in old Claro walnut Marlite, using this material as a contrast to the apple green of the other three walls. For the window treatment, a deep aluminum reveal is used that houses the Venetian blind and draperies. Built-in lights above the sofa provide direct light for reading and illuminate the three Currier and Ives prints of old locomotives that have been framed as wall decorations.

How the Cars Are Constructed

The six cars of each train, embodying the same basic shell construction, are designed to meet fully the re-



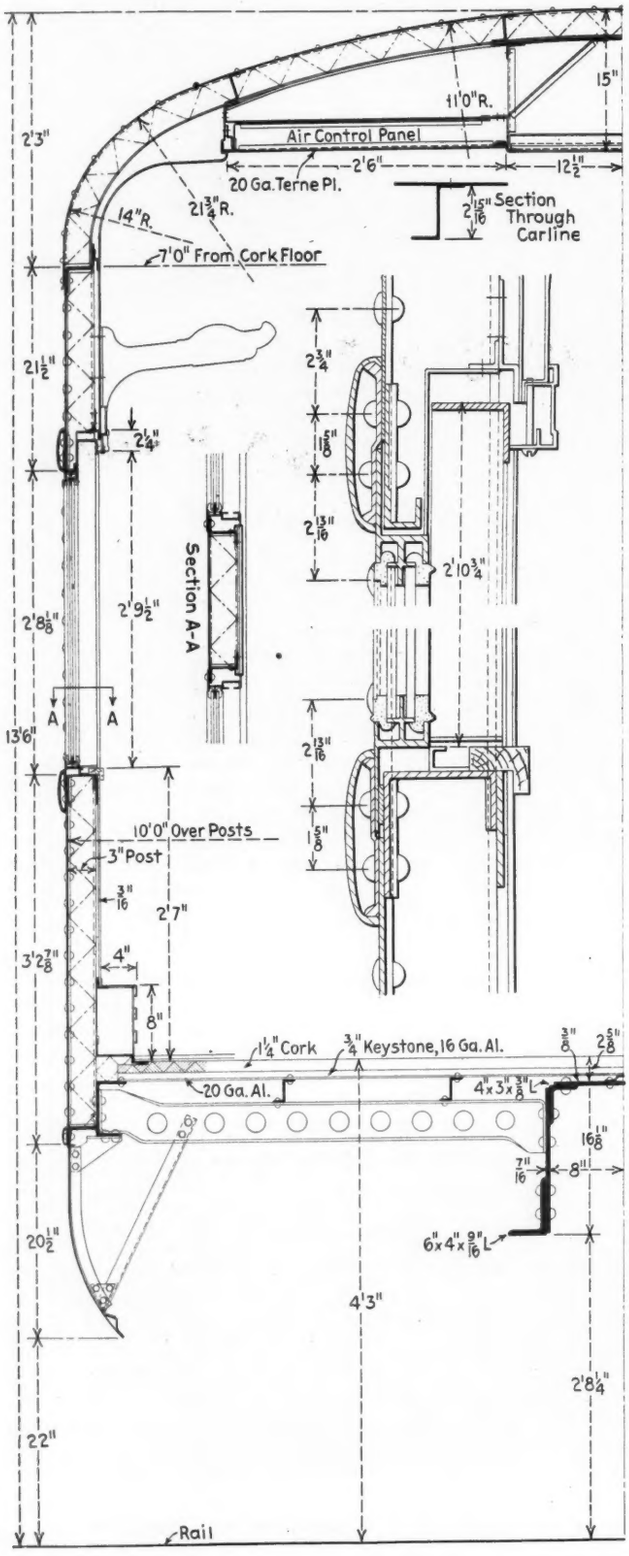
One of the Four-Wheel Trucks Equipped with Commonwealth Cast-Steel Frames and A.S.F. Roller-Bearing Wheel Units

quirements of the U. S. Railway Post Office specifications and the A. A. R. specifications for the construction of new passenger equipment. All materials used for the car-body framing are aluminum alloys with the exception of the bolsters, crossbearers and end sills, which are of low-alloy high-tensile steel, and the integral buffer castings and bolster center fillers, which are of unit cast steel, all assembled by riveting. Special extruded aluminum alloy sections are used for many of the framing members, the straightness and uniformity of these extrusions contributing largely to the true lines attained in the construction of the sides and roofs.

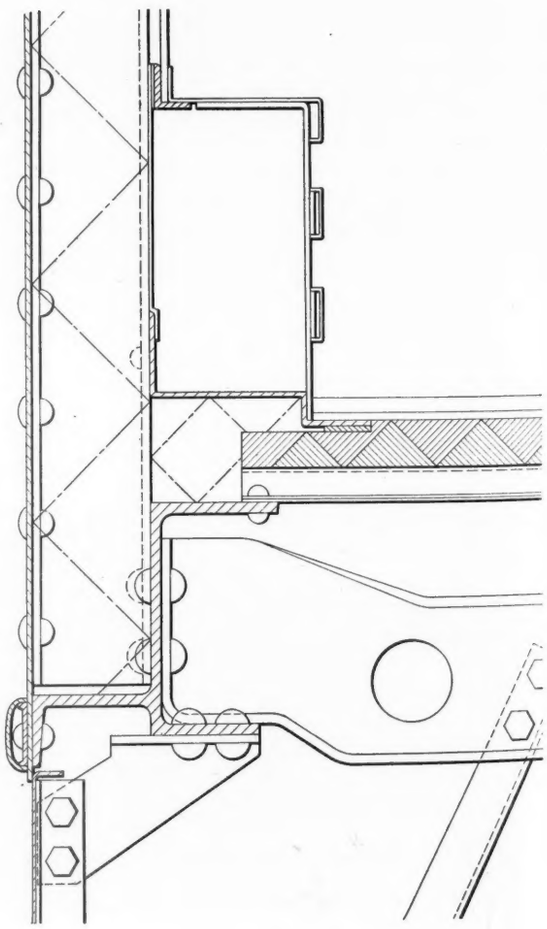
The center sills are of built-up aluminum alloy and have a minimum total cross-sectional area of 34.55 sq. in. The depth of the center sills is 16⅛ in. from top of cover plate to bottom of angle, and the construction includes a 15-in. by ⅜-in. top cover plate, 4-in. by 3-in. by ⅜-in. top angles, 7/16-in. webs, and 6-in. by 4-in. by 9/16-in. bottom angles. A further 5-in. by ¾-in. reinforcement is applied extending from the rear of the buffer casting through the bolster. The center-sill construction is connected at the rear of the draft gear to the combined buffer casting and draft-gear pocket, which has the coupler carrier cast integral and is arranged at the outer end to engage an anti-climber flange on the buffer faceplate angle.

The bolsters are low-alloy high-tensile steel of built-up welded construction, having a 20-in. by ⅜-in. top cover plate, 16-in. by ½-in. bottom cover plates, and ¼-in. webs. Crossbearers are also of built-up welded construction, consisting of top and bottom cover plates with pressed diaphragms. The floor beams are of aluminum alloy, pressed pan shape. Underframe diagonal braces, applied from car corners to the center sill and bolster, are 7-in. aluminum alloy channels.

The side frames of the cars are of girder construction, designed to carry the live and dead loads, as well as the



Cross-section and Enlarged Details of the Structure of the Aluminum-Alloy Cars of the Missouri Pacific Eagle Trains



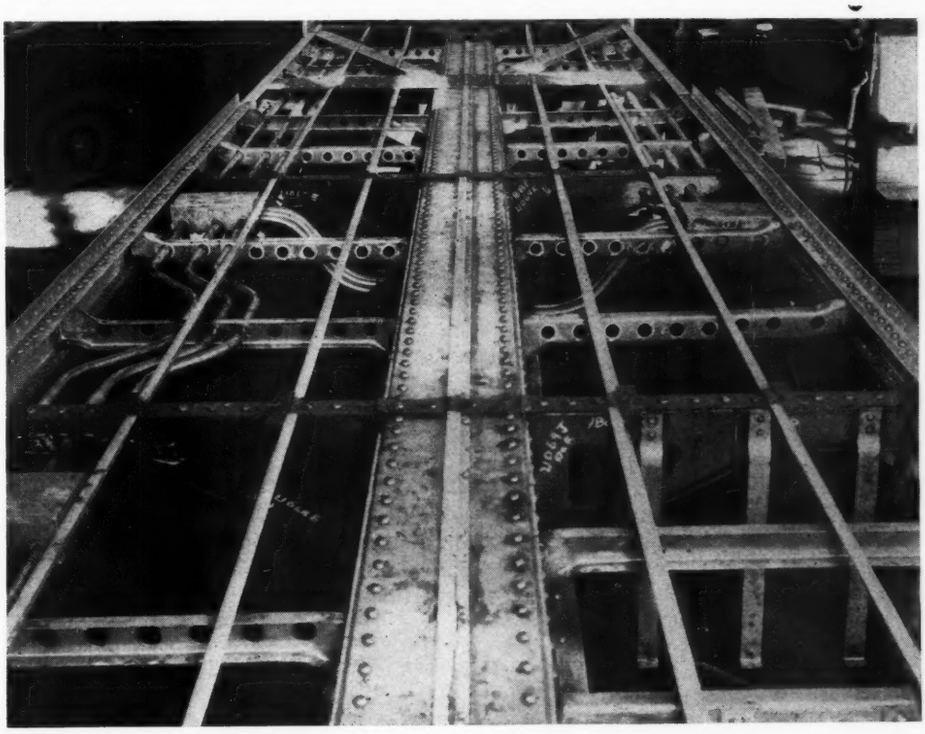
vertical re-actions from the underframe crossbearers under buffing loads. The side sills are a special extruded aluminum section with vertical web, to which the side posts are attached, and integral flanges for supporting the floors and for attachment to underframe members and side sheets. The section is so shaped as to close completely the bottom of the side construction and absolutely exclude road dust, dirt and moisture.

The side plates are 3-in. rolled aluminum alloy Z-shapes, and the side posts 3-in. extruded aluminum alloy Z-shapes. The belt rail construction includes 3-in. extruded aluminum channel shapes applied between posts, with a continuous inside flat bar. An outer continuous extruded shape riveted to side posts, side sheets and belt rail channel members forms the base for the attachment of the outside 4½-in. decorative anodized aluminum snap-on molding. A similar construction is used at the top of the window openings and these two anodized moldings above and below the windows extend the full length of the train, including the locomotive.

The side sheets, letterboards and pier panels are of No. 8 B. & S. gage aluminum alloy, forming the web plate of the girder construction. These side sheets and letterboards are stiffened between posts by small extruded aluminum Z-shapes applied vertically by spot welding. The window frames are of extruded aluminum sections, the frame forming a structural part of the side girder, being riveted to side posts and to the belt rail and letterboard stiffener construction.

The horizontal lines of rivets in the side-frame construction are concealed by the aluminum snap-on moldings. The exposed vertical lines of side frame rivets are of aluminum, driven cold, and have a low oval head of special design to minimize abrasion and wind resistance. The skirts, made of aluminum-alloy sheets, spot-welded to stiffening supports, are applied below the side sills on all cars, being cut out at the trucks and provided with hinged or removable doors where necessary for access to underframe equipment. The battery box is built into the underframe construction, and a portion of the skirt, counterbalanced by a spring-controlled mechanism, forms the battery-box door.

The principal members of the end-frame construction are the two diaphragm posts, made of 8-in. extruded aluminum-alloy channel sections. These posts extend into pockets in the buffer castings, and are supported at the top by the anti-telescoping construction, which consists of a 10-in. aluminum-alloy channel at the stub ends and a truss girder construction at vestibule ends, which includes the vestibule ceiling with suitable aluminum angle stiffeners. The diaphragm posts have a web thickness in the lower portion to meet fully the A. A. R. specification for shear resistance, and for weight saving the upper portion of these posts has the web thickness reduced by machining. The intermediate end posts are 4-in. by ¼-in. aluminum-alloy rolled Z-shapes and the corner posts are a special extruded aluminum section with integral flanges for the attachment of inside finish.



The Underframe Construction

Roof Construction

The roof frame is made of 3-in. aluminum alloy extruded Z-section carlines with four lines of extruded Z-section purlines. The roof sheets are .0781 in. aluminum alloy. The roof rivets are steel, driven hot, with exposed heads of a special low oval design.

Floor Construction

The longitudinal floor stringers in the underframe construction are aluminum alloy Z-shapes supported by the underframe crossmembers. Keystone floor sheets ¾ in. high, of No. 16 B. & S. gage aluminum alloy, have the lower grooves filled with lightweight insulation, after which the false floor sheet is spot-welded to the under side of these keystone floor sheets. The keystone floor sheets with the false flood sheets attached, are then applied on top of the floor stringers, after which the upper grooves are filled with lightweight composition floor material. On top of this keystone floor is applied 1¼ in. of

compressed cork, cemented in place. The upper floor in the kitchen and back of the bar are cast aluminum with an abrasive surface, and this same material is used for thresholds, buffer foot-plates and vestibule step treads.

In the two head-end cars, the floor construction includes the same false floor as in the other cars, wood floor stringers with insulation between, then double wood floors with paper between, and a third course of wood flooring applied crosswise at the baggage side doors.

Insulation

The compressed cork and the materials applied in the upper and lower grooves of the keystone, constitute the floor insulation. Fiberglas insulation, secured in place by wires, is used in the sides, ends and roofs, including 3 in. thickness in the sides and 2 in. in the ends of cars, 3 in. in the roofs of passenger-carrying cars and 2 in. in the roofs of head-end cars. Anti-squeak composition cork tape is used to break the direct metallic connection between the inside finish and the car framing.

Vestibules

Both ends of all cars are equipped with sheet rubber closures, following the outside contour of the car and forming continuous lines between coupled cars and between the head-end car and the locomotive. The side section of the closure face-plate construction is hinged to the center section, which is supported by suspension rods to the car body, and face plates are held in contact by coil springs and by semi-elliptic upper buffer springs.

Inside vestibule diaphragms are used on all cars, and vestibule curtains and tail gates on passenger-carrying cars. Trap doors are of aluminum, operated in conjunction with the folding steps, which form a continuous line with side skirts when closed.

Brakes

Westinghouse Schedule H.S.C. electro-pneumatic brake equipment with D-22-B control valves are applied on all cars. Speed-governor valves are applied on the baggage-mail cars and on the parlor-observation cars. Automatic emergency track sanding is provided at the inside pair of wheels on the rear truck of the first coach. There are two brake cylinders on each truck centrally located on each side, with Simplex clasp brake equipment having two standard brake shoes per wheel.

There is one Miner hand brake on each car, the vertical hand-wheel type being used at stub ends and the staff type at vestibule ends.

National tight-lock couplers are installed and draft gears are of the Waugh rubber type.

Lighting Equipment and Air-Conditioning

The two head-end cars are each provided with Safety 4-kw. underframe axle-light equipment having flat belt drive. The passenger-carrying cars have Safety 15-kw. equipment with V-belt and gear drive. Edison storage batteries of 900-amp.-hr. capacity are used on passenger-carrying cars, and 375-amp.-hr. capacity on head end cars. Lighting fixtures are all of special design. The Mazda 32-volt light load is 2,900 watts in each coach, 2,475 watts in the diner and 3,780 watts in the parlor-observation car. Fluorescent lighting in the dining section of the diner-bar-lounge car requires an additional 630 watts at 110 volts, single-phase a.c. In general, the lighting in these cars gives an intensity of about eight foot-candles at reading level.

A motor-alternator of 1,200-watts capacity, located under the dining car, is used to supply 110-volt current for fluorescent lighting, the radio and the cocktail mixer at the bar. A 300-watt motor-generator on each of the other passenger cars supplies 110-volt current for convenience outlets and the radio.

Safety stem-jet air-conditioning equipment with Vapor controls is applied on each passenger-carrying car, the refrigeration unit being of 7 tons' capacity and mounted under the car. One cooling unit is used per car, except on the diner-bar-lounge car, which has two 3½-ton cooling units, one for the dining section and the other for the bar-lounge section. Tempered air is distributed uniformly throughout the cars by multi-vent aluminum ceiling panels which are hinged for easy cleaning. The total electric load for the air-conditioning pumps, condenser fan and blower motors is about 119 amp. per car on the 32-volt circuit. Electric power requirements for exhaust fans, drinking-water cooler, range oil-burner motor and dish-washer motor reach a maximum of about 35 amps. on the 32-volt circuit in the diner-bar-lounge car.

Vapor heating equipment includes heat-tempering coils in the air-conditioning units and unit fin-type floor heat, all under thermostatic control, steam being supplied from a Vapor-Clarkson steam generator on the Diesel locomotive. Flexible steam conduits, and valves, steam couplers and wash-water heating specialties are also of the Vapor type.

Kitchen Equipment

The kitchen interior equipment is all of stainless-steel construction. The range is designed to burn oil, and ample refrigerator capacity is provided with water-ice refrigeration. An electric dish-washer is applied in one of the sinks at the side wall of the car.

Kitchen ventilation is supplied by a ⅓-hp. double exhaust blower over the range, with fresh air intake and filter in the lower part of the kitchen side door. The water-carrying capacity on the diner-bar-lounge car is 400 gal., with 300 gal. in two stainless-steel tanks under the car and 100 gal. in an overhead tank in the kitchen.

Features of the Truck Design

Four-wheel trucks are used on all cars, with 6-in. by 11-in. journals on the mail-storage car, at the baggage end of mail-baggage car, and at the kitchen end of the diner-bar-lounge car. Other trucks have 5½-in. by 10-in. journals. The 36-in. rolled-steel wheels are carefully balanced before mounting on the A. S. F. roller-bearing unit housings which are equipped on these cars with SKF roller bearings. The wheel treads are ground after mounting, thus producing the good riding qualities resulting from concentric wheel treads and balanced rotating parts. National journal bearings installed in standard A. A. R. waste-packed journal boxes serve as an added precaution against any car delay due to bearing failure.

The trucks are the single drop-equalizer, swing-motion type, with Commonwealth alloy-cast-steel frames having pedestals cast integral. Both equalizer and bolster springs are helical coil design of alloy steel. Vertical motion is controlled by Munroe shock absorbers and truck bolsters are restrained longitudinally of the car by the rubber-cushioned bolster anchor rods. Lateral sway is controlled on the diners and parlor-observation cars by a stabilizer arrangement, which replaces the conventional spring plank.

Sound-deadening materials, made largely of composition rubber, are used at bolster springs, truck center plates and body side bearings to isolate truck noises completely from the car body. Sound-deadening materials

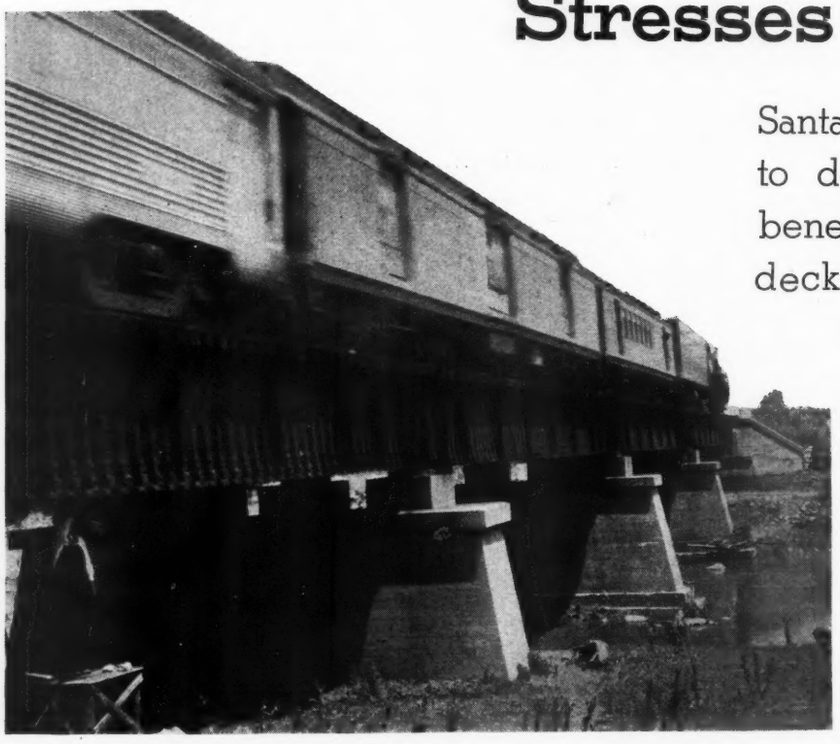
are also used at moving parts of the coupler and face-plate mechanism.

Partial List of Materials and Equipment on the Missouri Pacific Streamline Trains Built by the American Car and Foundry Company

Aluminum shapes, plates, sheets, castings, and outside snap-on moldings	Aluminum Company of America, Pittsburgh, Pa.
Quick-Lock molding	Kinkead Industries, Inc., Chicago
Steel castings	American Steel Foundries, Chicago
Cor-Ten steel	Carnegie-Illinois Steel Corp., Pittsburgh, Pa.
Truck frames, cast steel	General Steel Castings Corp., Eddystone, Pa.
Wheels (3)	Armco Railroad Sales Company, Middletown, Ohio
(3)	Bethlehem Steel Company, Bethlehem, Pa.
(3)	Carnegie-Illinois Steel Corp., Pittsburgh, Pa.
(3)	Standard Steel Works Company, Burnham, Pa.
Springs	American Locomotive Company, Railway Steel Spring Div., New York
Axles	Carnegie-Illinois Steel Corp., Pittsburgh, Pa.
Upper buffer spring	Standard Railway Equipment Mfg. Co., Chicago
Buffer castings	General Steel Castings Corporation, Eddystone, Pa.
Draft gear	Waugh Equipment Company, New York
Couplers, yokes and journal boxes	National Malleable and Steel Castings Co., Cleveland, Ohio
Coupler-centering device	American Car and Foundry Company, New York
Bolster-locking center pin	W. H. Miner, Inc., Chicago
Side bearings	Alcoma Railway Equipments, Chicago
Shock absorbers	Monroe-Evans Railway Equipment Div., Evans Products Company, Monroe, Mich.
Journal wedges	American Car and Foundry Company, New York
Journal bearings	National Bearing Metals Corp., St. Louis, Mo.
Dust guards	Railway Equipment Div., Portable Plating Company, Chicago
Roller-bearing wheel units with SKF roller bearings	American Steel Foundries, Chicago
Sound-deadening pads	United States Rubber Company, New York
Electro-pneumatic brakes	Westinghouse Air Brake Company, Wilmerding, Pa.
Simplex clasp brakes	American Steel Foundries, Chicago
Hand brakes	W. H. Miner, Inc., Chicago
Brake shoes	American Brake Shoe & Foundry Co., New York
Inside diaphragms	Tuco Products Corporation, New York
Diaphragm rubber	United States Rubber Company, New York
Vestibule curtains	The Adams & Westlake Co., Elkhart, Ind.
Vestibule face-plate lining	Scandinavia Belting Company, Newark, N. J.
Trap doors	O. M. Edwards, Inc., Syracuse, N. Y.
Threshold plates	American Abrasive Metals Company, Irvington, N. J.
Platform rubber	United States Rubber Company, New York
Weatherstrip	Midgley & Borrowdale, Chicago
Fiberglas insulation	Gustin-Bacon Manufacturing Company, Kansas City, Mo.
Doors, inside	Haskelite Manufacturing Corporation, Chicago
Doors, outside	American Car and Foundry Company, New York
Door springs	American Spiral Spring & Mfg. Co., Pittsburgh, Pa.
End door hinges	Loeffelholz Company, Milwaukee, Wis.
End door locks	Dayton Manufacturing Company, Dayton, Ohio
Locks	Yale & Towne Mfg. Co., Stamford, Conn.
Door tracks and hangers; bagg.-mail side door hangers	Richards-Wilcox Mfg. Co., Aurora, Ill.
Door closers	Norton Lasier Company, Chicago
Mail-room fixtures	American Car and Foundry Company, New York
Masonite	Masonite Corporation, Chicago
Plymetl	Haskelite Manufacturing Corporation, Chicago
Marlite	Marsh Wall Products, Inc., Dover, Ohio
Anti-squeak tape	Armstrong Cork Company, Lancaster, Pa.
Flooring	Tuco Products Corporation, New York
Keystone floor	American Car and Foundry Company, New York
Rubber floor covering	Goodyear Tire & Rubber Co., Inc., Akron, Ohio
Cork base	Armstrong Cork Company, Lancaster, Pa.
Floor cement	Presstite Engineering Company, St. Louis, Mo.
Sash, passenger-car	Hunter Sash Company, Inc., Flushing, L. I., N. Y.
Sash, baggage-mail car	O. M. Edwards, Inc., Syracuse, N. Y.
Glass	Pittsburgh Plate Glass Company, Pittsburgh, Pa.
Pressed prism safety glass	Pressed Prism Plate Glass Company, Chicago
Window-sill capping, Micarta	Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.
Pneu-pad	Midgley & Borrowdale, Chicago
Window curtains	The Adams & Westlake Co., Elkhart, Ind.
Venetian blinds	H. B. Dodge Company, Chicago
Tekko wall covering	Frederic Blank & Co., New York
Carved glass medallions; carved wood panels	Regal Glass Corporation, New York
Plastic emblems	Treitel-Gratz Company, New York
Display frames	Dayton Manufacturing Company, Dayton, Ohio
Formica	The Formica Insulation Company, Cincinnati, Ohio
Reclining seats	Coach & Car Equipment Co., Chicago
	S. Karpen & Bro., Inc., Chicago
Seat cushions	Firestone Tire & Rubber Co., Airtex Division, Fall River, Mass.
Parlor-car chairs	Heywood-Wakefield Company, Gardner, Mass.
Tables	General Fireproofing Company, Youngstown, Ohio
Upholstery fabrics	Blanchard Bros. & Lane, Newark, N. J.
	L. C. Chase & Co., Inc., New York
	H. D. Taylor Company, Buffalo, N. Y.
Drapery materials	Cromwell Designs, Inc., New York
	Gustin-Bacon Manufacturing Company, Kansas City, Mo.
	Morton Sundour Company, Inc., New York
	Rodoma, Inc., New York
	Rosewood Weavers, New York
	F. Schumacher & Company, New York
Carpet	Chas. P. Cochrane Company, Philadelphia, Pa.
Bars	Southern Equipment Company, St. Louis, Mo.
Bar fixtures	The Adams & Westlake Co., Elkhart, Ind.
Bar mural	Painted by Mrs. Buell Mullen, Evanston, Ill.
Clocks	A. W. Fowler Manufacturing Company, Highland, Ill.
Ash stands and serving trays	Marshall Field & Co., Chicago
Ash receivers	The Adams & Westlake Co., Elkhart, Ind.
Parcel racks	Safety Car Heating & Lighting Co., New York
Kitchen range	Stearnes Company, Chicago
Kitchen and pantry equipment	Duke Manufacturing Company, St. Louis, Mo.
Range oil burner	Williams-Oil-O-Matic Heating Corp., Bloomington, Ill.
Dish washer	Surgex Manufacturing Company, Oakland, Cal.
Drinking-water cooler	General Electric, Schenectady, N. Y.
Water filters	Henry Giessel Company, Chicago
Water purifier	Tested Appliance Company, Chicago
Batteries	Edison Storage Battery Div., Thomas A. Edison, Inc., West Orange, N. J.
Charging receptacles	The Pyle-National Company, Chicago
Axle lighting equipment	Safety Car Heating & Lighting Co., New York
Lighting fixtures	The Adams & Westlake Co., Elkhart, Ind.
	Dayton Manufacturing Company, Dayton, Ohio
	Safety Car Heating & Lighting Co., New York
Fluorescent lamps	General Electric, Schenectady, N. Y.
Fluorescent starter	Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.
Electric wire	General Cable Corporation, New York
	Kerite Insulated Wire & Cable Co., New York
Electric conduit	Appleton Electric Company, Chicago
Cable connectors	Thomas & Betts Co., Elizabeth, N. J.
Back-up and marker lights	The Pyle-National Company, Chicago
Annunciators	Edwards & Co., Inc., Norwalk, Conn.
Motor-generator sets (for radios)	Janette Manufacturing Company, Chicago
Radios	RCA Manufacturing Company, Inc., Camden, N. J.
Air-conditioning equipment	Safety Car Heating & Lighting Co., New York
Exhaust blowers	B. F. Sturtevant Company, Hyde Park, Boston, Mass.
Mail-room fans	Safety Car Heating & Lighting Co., New York
Exhaust fans	Diehl Mfg. Co., Elizabethport, N. J.
Exhaust ventilators	American Car and Foundry Company, New York
Uni-Flo grilles	Barber-Colman Company, Rockford, Ill.
Perforated aluminum ceiling and multi-vent panels	The Pyle-National Company, Chicago
Heating equipment and air-conditioning controls	Vapor Car Heating Company, Inc., Chicago
Train connectors	The Pyle-National Company, Chicago
Dry hoppers; folding washstands	The Adams & Westlake Co., Elkhart, Ind.
Flush hoppers	Duner Company, Chicago
Lavatories; copper pipe and fittings	American Radiator & Standard Sanitary Corp., New York
Copper pipe fittings	Mueller Brass Foundry Co., Port Huron, Mich.
Pipe insulation	Union Asbestos & Rubber Co., Chicago
Motor alternators	Safety Car Heating & Lighting Co., New York
Speed indicator	Electric Tachometer Corp., Philadelphia, Pa.
Car oil	The Texas Company, New York
Wool waste	National Waste Company, New York
Fire extinguishers	Pyrene Mfg. Co., Newark, N. J.
Decorative eagle rear of train	Aluminum Company of America, Pittsburgh, Pa.
Paint, exterior	E. I. du Pont de Nemours & Co., Inc., Wilmington Del.
Paint, interior	The Mitchel-Mayer Company, Inc., St. Louis, Mo.
	Murphy Varnish Company, Newark, N. J.
	Pratt & Lambert, Inc., Buffalo, N. Y.

Do Higher Speeds Increase Stresses in Bridges?

Santa Fe undertakes experiments to determine effect—Discloses beneficial effect of ballasted decks in lessening impact



Securing the Gage Readings on a Multiple-Span, Open-Deck Girder Bridge Under a Fast-Moving Train

By R. A. Van Ness
Bridge Engineer,
A. T. & S. F. System

THE high-speed freight and passenger traffic carried by the railroads of the United States today is, to a largest extent, powered by new steam locomotives that have been designed for the speeds at which they are operated, or by old locomotives revamped so far as practicable to enable them to attain these speeds. However, early in 1936 when the speed trend for all classes of railroad traffic turned definitely upward, the roads affected by this trend started to "look to their bridges," particularly their metal bridges of lighter design, to insure that they were of adequate strength to meet any new demands that might be imposed upon them.

While the metal bridges of this character on the Atchison, Topeka & Santa Fe were known to be satisfactory from the standpoint of strength when investigated under the rules and unit stresses for rating existing bridges adopted by the American Railway Engineering Association in 1921, the management of this road desired definite proof of this fact through a comparison of directly-measured stresses with those obtained by theoretical analysis based on the rating rules referred to above.

Instruments Selected

The ability to secure authoritative direct readings of the deformation of metal in sections or members of spans under fast-moving loads demands an instrument with a minimum number of moving parts so that vibration of the span will not be reflected in the record. While several types of instruments were available for obtaining satisfactory direct readings in spans under static and slowly-moving loads, the types suitable for recording stresses produced by fast-moving loads were quite complicated, and their use would have involved high initial cost and expensive operation. It was realized that a satisfactory instrument and accessories must first of all be accurate, and second, not too expensive and sufficiently simple that the cost of operation would be reasonable.

With these considerations in mind, the Santa Fe assembled four scratch-recording strain gages, two Whittemore strain gages, two microscopes, and a speed recorder to obtain and interpret the stresses in members of metal bridges due to static and moving loads. (Fig. 1). The scratch-recording strain gage is an adaptation of the instrument that has been used by the engineering experiment station of the University of Illinois in connection with its rail fissure investigation. The university developed its instrument from the De Forest scratch gage made by the Baldwin Southwark Corporation, Philadelphia, which company signified its willingness to allow the Santa Fe to incorporate the De Forest scratch gage feature in instruments to be made for its bridge testing work. The accompanying view of the scratch gage (Fig. 2) shows the general features of its construction. The instrument has a 10-in. gage point distance.

The record line showing the extent of the deformation between the gage points in the steel members under test is scratched on a chromium-plated target attached to a carrier which rotates around a ball bearing. The target carrier is the only moving part of the instrument, and is designed to move down under spring tension actuated by vibration of the span. The scratch arm carries a piece of celluloid $\frac{1}{16}$ in. square, on which is embedded 200-mesh diamond dust. The several particles of diamond dust on the celluloid usually make several identical scratches on the target and the best one is selected for reading. A large number of preliminary tests were made before imperfections in the scratch gage instruments

could be located and corrected, but tests now show that about 95 per cent of the record plates can be interpreted readily.

The scratch record made by the scratch gage on the chromium-plated target is so minute that it must be read by high-power lenses, and for this purpose an instrument of 125 magnifications was secured. The magnitude of the stress curve is read by a filiar micrometer on which each division represents a deformation of 0.00003937 in. A shop microscope of 40 magnifications is used in the field to check the grade of records being obtained.

The Whittemore strain gages are dial gages invented by Professor H. L. Whittemore, chief of the Engineering Mechanics section of the National Bureau of Standards. Experience with these gages has proved them to be very consistent in performance, with a smooth dial movement under slowly moving loads. They are especially useful in checking static stresses recorded by the scratch gages and for reading static stresses in general. The instrument has a 10-in. gage point distance.

The speed recorder employed in the testing is a neatly

Fig. 1—Scratch Gages, Whittemore Strain Gages and Accessory Equipment

boxed instrument, consisting essentially of a stop watch which is operated by coils actuated by dry batteries, thus making it possible to determine the speed of trains between two points in the track of known distance apart.

The scratch gages and Whittemore strain gages are calibrated periodically in the shops of the engineer of tests of the Santa Fe, by attaching them to a tension bar and a wide-flange beam, which were specially chosen to insure uniformity of section throughout (the wide-flange beam is shown in Fig. 3). This bar and beam, with the gages attached, are set up in a testing machine and loads are then applied. Under this method of calibration testing, the widest variation found to date between the theoretical and scratch gage stresses was 3.4 per cent for the tension bar and 2.0 per cent for the beam section; and between the theoretical and Whittemore gage stresses was 1.8 per cent for the tension bar and 2.8 per cent for the beam section. Comparison of static stresses obtained in the field by the two types of gages have shown differences in harmony with those of the calibration tests.

Operation and Records

The gage points of the scratch gage and the Whittemore strain gage are set in holes $\frac{1}{16}$ in. in diameter,

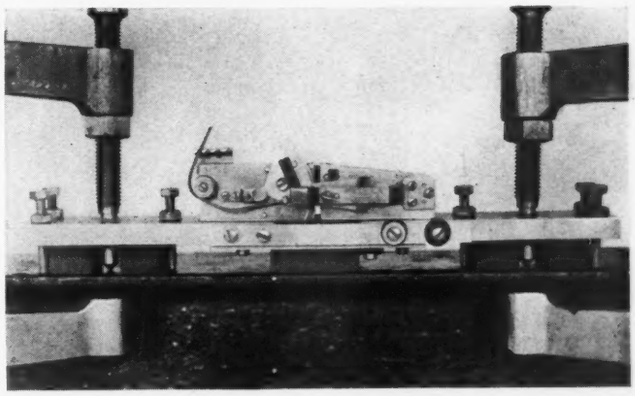


Fig. 2—Close-Up View of One of the Scratch Gages, Showing Details of Its Construction

drilled about $\frac{3}{16}$ in. into the steel, after all burs have been reamed out of the holes and all loose metal and dirt have been removed. The engineer in charge of the bridge stress tests, with an engineer from the division office, secure the records, and these men can usually take all of the readings necessary for analyzing an I-beam or girder span in one or two days. Three or four days are required to obtain the desired data on a single-track truss span.

The records of stress measurements taken must be distinct and free from other than slight effects of vibrational movement if they are to be reliable. A number of photomicrographs of chromium-plated records taken with the scratch gage are shown in the accompanying illustrations, such pictures being taken frequently to allow close study of the effect of a live load passing over a span. The scratch record lines on a chromium record plate, as seen through a 125-diameter microscope, are frequently more distinct and clear-cut than show up on the photomicrographs, owing to shadows on the photomicrographs which tend to result in white lines alongside each record line. The deformation in the steel is indicated by the distance between the base line, which is made with no load on the structure, and the irregular line, which is made when the live load crosses the span. The views of records shown are of stresses in beam

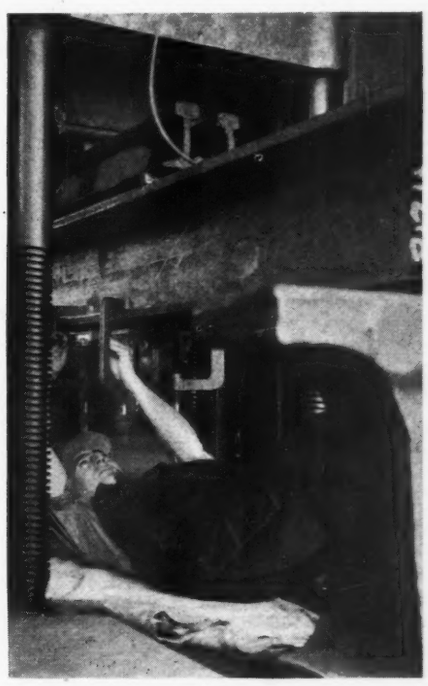


Fig. 3 — Calibrating the Gages by Measuring the Stresses in a Test Beam Set in a Testing Machine

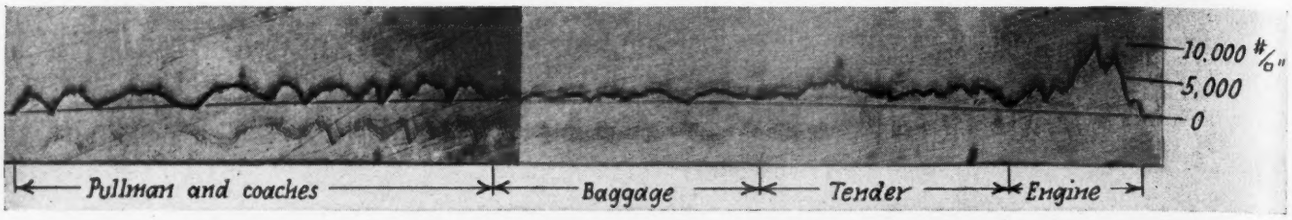


Fig. 4—Strain Record Taken on the Bottom Flange of a 24-Ft. Open-Deck Beam Span, Under a Train Moving at 45 M. P. H.

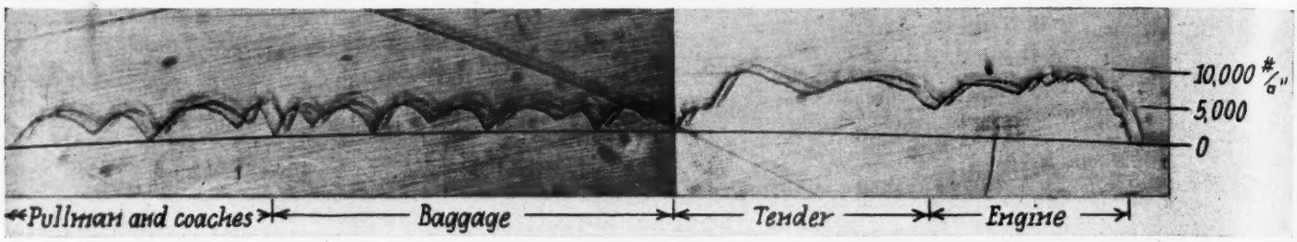


Fig. 5—Strain Record Taken on the Bottom Flange of a 24-Ft. Beam Span With a Ballasted Timber Deck, Under a Heavier Passenger Engine of the Same Type, and a Much Heavier Tender Than Produced the Record Shown in Figure 4

and girder spans where the vibration is usually greater than that found in the chord and web members of truss spans.

Figure 4 shows the strain record of the bottom flange of an open-deck beam span 24 ft. long, under a passenger train moving at 45 m. p. h. The effects of the engine, the light tender, the baggage and the heavy Pullman and day coaches, can be noted readily.

Ballasted Decks Reduce Impact Stresses

Figure 5 shows the strain record of the bottom flange of a 24-ft. beam span with a ballasted timber deck, under a heavier passenger engine of the same type, and a much heavier tender than produced the record shown in Fig. 4, moving at a speed of 40 m. p. h. Here, it is noted that the heavy tender produced a stress approximating that set up by the engine. Incidentally, the maximum stress in the open-deck span of a design identical with the ballasted-deck span was about 25 per cent greater, even under the lighter engine, at about the same speed. This is indicative of the benefit of a ballasted deck in reducing the effect of impact.

Figure 6 shows the strain record taken on the bottom flange of a 70-ft. deck girder span with a ballasted timber deck under a Diesel-electric locomotive and light cars, operating at 80 m. p. h. A combination of high speed and possible tight friction on the target carrier account for the shortness of the record.

The strain record for a span of similar design to that involved in Fig. 6 but having an open deck, under the same live load and at the same speed, is shown in Fig. 7. Here, the record carrier was quite loose and a long record resulted. There were always some wheels on a span of this length, and the effect of the train can easily be followed. Incidentally, the open-deck span involved in Fig. 7 had a maximum stress about 20 per cent higher than that developed in the ballasted-deck span involved in Fig. 6, again emphasizing the value of a ballasted deck in reducing the effect of impact and consequent wear on a span.

It has long been considered on the Santa Fe that ballasted-deck construction has many advantages over open-deck construction, one of the major of these being the lowering of the impact stress in steel spans. At a few locations on this road there are spans of the same design, with open and ballasted decks, carrying the same class of power. These structures have made it possible to obtain a direct comparison of impact stresses. To date, the average of stress records made under such conditions indicate that the impact in ballasted-deck spans from 24 to 149 ft. in length is about 40 per cent lower than in open-deck spans of corresponding lengths. The ballasted deck results in additional dead load stress, but

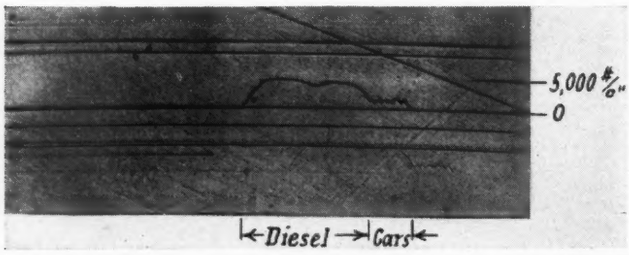


Fig. 6—Strain Record Taken on the Bottom Flange of a 70-Ft. Deck Girder Span With a Ballasted Timber Deck, Under a Diesel-Electric Locomotive and Light Cars Operating at 80 M. P. H.

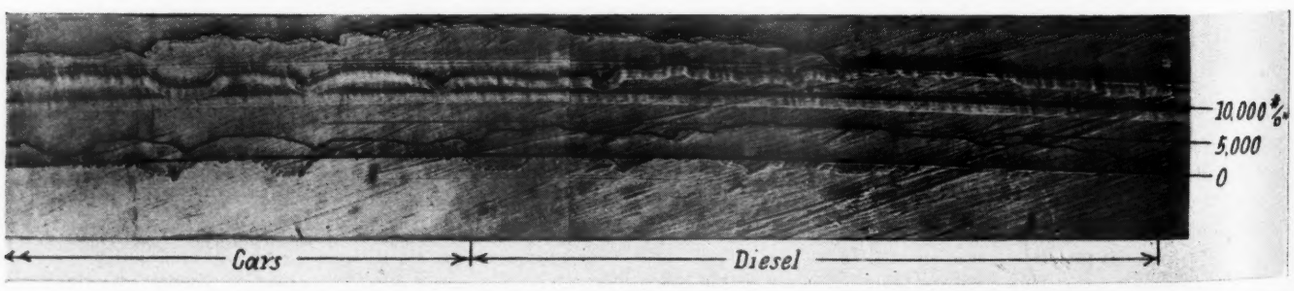


Fig. 7—Strain Record Taken on the Bottom Flange of a 70-Ft. Deck Girder Span With an Open Deck, Under the Same Loading and Speed Involved in the Making of the Record Shown in Figure 6

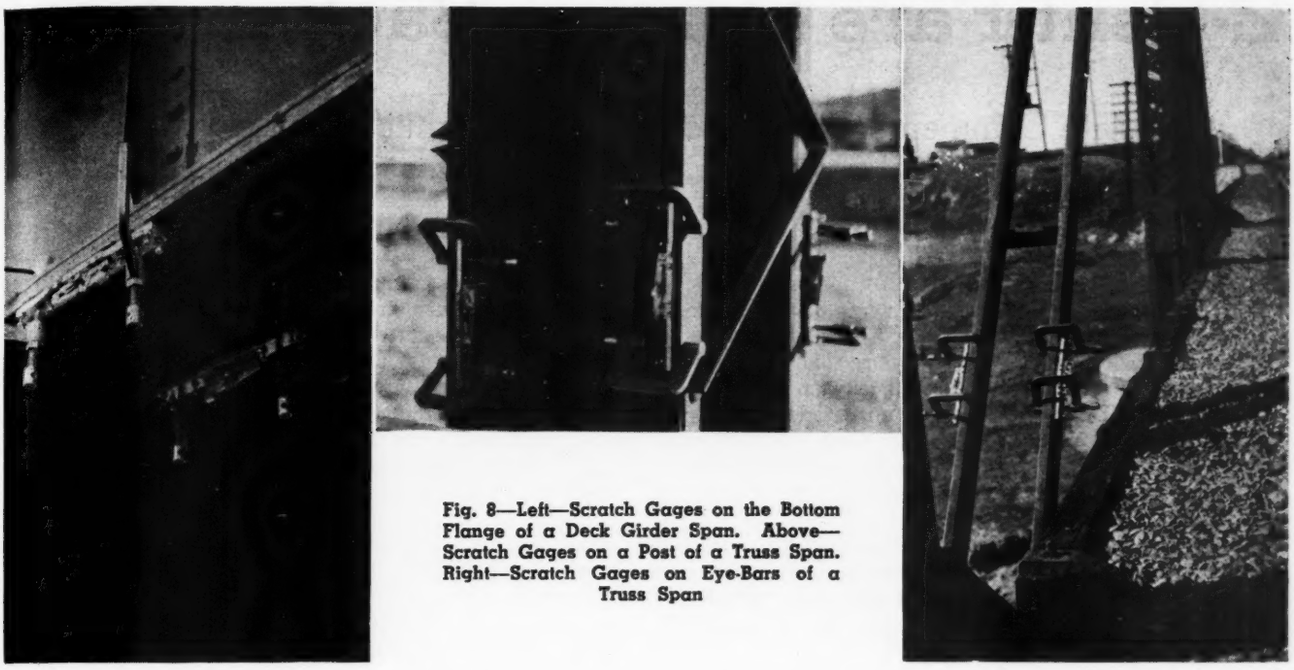


Fig. 8—Left—Scratch Gages on the Bottom Flange of a Deck Girder Span. Above—Scratch Gages on a Post of a Truss Span. Right—Scratch Gages on Eye-Bars of a Truss Span

this is more than offset by the stress reduction due to lessened impact. The net reduction in total stress because of ballasted-deck construction has varied from 40 per cent for short spans to 10 per cent for long spans according to readings taken to date.

Measured and Theoretical Stresses Compared

It has always been recognized that the engine frame and boiler of a locomotive combine to form a very stiff structure. Stress records obtained to date on both open and ballasted-deck spans, employing the instruments described, indicate that the static stress in a 24-ft. beam span loaded with the heaviest passenger and freight locomotives is about 65 per cent of the theoretical static stress, and in a 60-ft. span, about 80 per cent, while in a 90-ft. girder span the measured and theoretical static stresses check closely. In truss spans varying from 130 to 260 ft. in length, there is close agreement between the measured and theoretical static stresses in all of the members except the lower chords. It was found that the lower chord of a 260-ft. span was carrying only 79 per cent of the theoretical static stress, while the stresses in the stringers of this structure were considerably higher than those usually found in a simple span. A comparable variance between theoretical and measured static stresses in railroad spans was found by the A. R. E. A. Sub-committee on Impact in 1911, and by the British Bridge Stress Committee in 1928.

The theoretical stresses in the beams and girders referred to are based on the gross moment of inertia of the section. The measured live load stresses were first found by stopping the locomotive on the span in the position for maximum moment, but later, with similar results, the readings were taken with the locomotive moving at a slow speed, thus saving time in spotting it in position. Tests were made to determine if the ballasted deck was acting as part of the top flange of deck girder spans, but this was found not to be the case, at least with unfrozen ballast.

Both the scratch gage and the Whittemore strain gage were used in measuring the static stress in order to have a check on the results.

As noted previously, the measured static stress in short spans was considerably below the theoretical. In general, the amount of measured impact stress in the shorter spans and the 1935 A. R. E. A. impact stress are in close agreement. The measured static stress in the longer girder spans and in the truss spans agree closely with the theoretical, but the per cent of measured impact in the shorter truss spans, has, to date, been found to be above the 1935 A. R. E. A. impact percentage, especially in the top chords and diagonals. This is true of truss spans with both ballasted and open decks, and is sometimes true of the open-deck truss spans with respect to the 1925 A. R. E. A. impact percentage. The measured impacts in the longer ballasted-deck truss spans have, to date, been found to be above both the 1938 and 1925 A. R. E. A. impact percentages.

It has been found also that the maximum stresses in truss spans occur when the speed of the locomotive synchronizes with the period of vibration of the loaded structure.

Further Development Possible

Up to the present time the main consideration in the use of the scratch gages has been to determine the maximum stress and the fluctuation of the scratch record line as the train crossed the bridge. These instruments could be equipped readily so that all record carrier arms would move with known uniform speeds, and through an electrical control begin their movement as the first axle of the moving train reaches the approach end of the bridge. This supplemental equipment would be necessary if a detailed study were to be made of impact and secondary stresses.

Experience of the Santa Fe has proved that the adaptation of the De Forest scratch gage in instruments for the purpose of determining the extent of deformation of members and sections of metal bridges, especially under high-speed traffic, provides a quick and economical method for determining what the actual stresses in these members and sections are. It has proved also that these instruments can be of great assistance when it becomes necessary to decide whether a light structure can remain in service with safety, whether it must be reinforced, or whether it must be replaced with a new span.

2-Cent Fare Coming Back in East

Interstate Commerce Commission refusal to permit further experimentation with 2.5-cent coach rate will restore lower basis on March 24

WASHINGTON, D. C.

INTERPRETING the evidence of record as making it "clear that the 2.5-cent basic fare has not been a success," and that the descending-scale fares "hold no promise of effectively meeting more than a small portion of the competition by bus and private automobile," the Interstate Commerce Commission has denied the application of Eastern railroads other than the Baltimore & Ohio for authority to continue the two-and-one-half-cent coach rate in effect for a further experimental period ending October 31. The effect of the decision will be to bring the basic coach fare in the East back to two cents per mile on March 24, the expiration date of the 60-day extension which the commission permitted for the purpose of holding hearings and disposing of the application.

The majority report—it was a seven-to-three decision—was written by Commissioner Porter, while Commissioner Mahaffie noted his dissent for reasons stated in his dissenting expressions in the 1936 fare-cut decision and in the first report on the Eastern-fare phase of the Ex Parte 123 case. Dissents of Commissioners Miller and Rogers were merely noted while Commissioner Lee did not participate in the disposition of the proceeding.

Thinks 2-Cent Fare Will Bring More Net

Generally speaking the majority report is an analysis of statistical data on revenue and traffic results under the former two-cent rate, the 2.5-cent rate and the latter as modified by the descending-scale fares. Pointing out that the "important question" is whether the results under the 2.5 cent basic fare warrant its continuance, the commission came to the conclusion that this fare had ample time to show its stuff during the nine-months period from its inauguration in August, 1938, to April, 1939, when the World Fair fares came along to distort the picture. Also, it found that the descending scale fares "are relatively unimportant compared with the basic coach fare"; and that the further experimentation sought "would serve more to confuse than to add anything of value" to the record for the purpose of resolving the issues. Among its conclusions the commission set forth a finding that "the future net revenue results to the Eastern railroads will probably be more favorable under a two-cent than under a 2.5-cent basic coach fare in Eastern territory."

Speaking for the majority, Commissioner Porter opened his report with a brief outline of events leading up to the case in hand. He recalls how the Eastern roads adhered to the old 3.6-cent rate while experiments with lower fares went on in the West and South; and how the commission in No. 26550, Passenger Fares and Surcharges, prescribed a two-cent maximum coach fare effective June 1, 1936. Then came the Ex Parte 123 proceeding wherein the Eastern roads' petition for a 2.5 cent fare was first denied and then granted for an experimental period of 18 months from July 25, 1938. When the railroads came in last December with a request for an extension for an additional six months beyond the January 24, 1940, deadline the commission responded with the aforementioned 60-day extension to March 24 and an order assigning the application for hearing on January 4. These hearings, featured by the B. & O. opposition to the extension, were reported in the *Railway Age* of January 13, page 130.

Coming to its analysis of the statistical evidence, the majority report refers to the petitioners' endeavor to show that under the 2.5-cent fare and the descending-scale fares the passenger revenues in the East have been better than those in the South and West. After looking over the supporting data, the commission asserts that "those figures, standing alone, present an incomplete picture." "Much of the poor showing made by the South in several of those periods," it goes on, "is due to the maintenance in that region of the increased coach fare of two cents from November 15, 1937, to January 15, 1939, and the upturn in passenger revenues in the East commencing in the latter part of 1938, must be ascribed more to increased business activity, which was more noticeable in the East than in the other sections of the country, than to any change in fare."

Next the commission looks over the situation in the first quarter of 1939, before the World Fair tickets came into the picture. In that period, it says, the passenger revenue, excluding commutation, declined 2.9 per cent in Eastern territory, compared with an increase in freight revenue of 20.4 per cent and an increase in total intercity bus revenue of 17.8 per cent. This situation is compared to that in the West and South as the commission leads up to a citation of results in November, 1939, the latest month of record. Eastern passenger revenue in that month, the report goes on, "declined 6.5 per cent as compared with a freight revenue increase of 28.5 per cent; in the South the passenger revenue increased 3.1 per cent and the freight revenue 13.8 per cent; and in the West the increase was 1.8 per cent from passengers and 7.2 per cent from freight."

1939 Experience in Three Territories

"It thus appears," the commission adds, "that in the first quarter of 1939, under the 2.5-cent coach fare and before the World Fair travel commenced and the descending scales became effective, the passenger results in the East were less favorable, in their relation to the freight and bus results, than in the South and West; that in the third quarter of 1939, with the benefit of the World Fair stimulus and with the use of the descending scales, the passenger results in the East in their relation to the freight results were at least no more favorable than in the South and in the West; and that in November, 1939, the first month when the regular fare structure, comprising the 2.5-cent basic coach fare and the descending scales, had a fair trial without the World Fair travel, the Eastern carriers suffered a substantial decline in passenger revenue while the Southern and Western carriers showed an increase over the corresponding month of 1938, even though the increase in freight revenues in the East was much greater than in either the South or the West.

"Perhaps the most representative period in which a helpful comparison between the results under the 2.5-

cent fare and those under the two-cent fare can be made is from August, 1938, to April, 1939, both inclusive, before the World Fair travel commenced, under the higher fare, and the same months in the next preceding year under the lower fare. If there was any material difference in general business conditions in those two periods, they were more favorable in the latter than in the earlier period. In the period under the 2.5-cent fare the coach passengers in the East declined 17.2 per cent, the passenger-miles 19.8 per cent, and the revenue 7.5 per cent. The revenue per passenger-mile increased 15.9 per cent, from 1.89 to 2.19 cents. At the same time the freight revenue increased 2.7 per cent, and the Eastern intercity bus lines increased the number of their passengers 8.0 per cent and their passenger revenues 14.8 per cent."

2.5-Cent Rail Fare Helped Bus Lines

Reviewing the trend in the monthly ratio of passenger revenue to the total freight and passenger revenue, the commission notes that in Eastern territory this ratio "has been below that for the corresponding months of the preceding year since September, 1938." The report recognizes, of course, that the ratio of passenger revenue to total revenue is still greater in the East than in other territories; but it finds significance in the fact that "bearing in mind the much greater increase in freight revenue in the East . . . the passenger revenue under the 2.5-cent fare prior to the World Fairs in 1939 made a showing in this respect at least no better than in the other sections of the country." Next in turn the report calls upon the experience of the Southern roads to demonstrate that "higher fares do not necessarily produce more revenue"; and upon bus statistics to support an assertion that results under the 2.5-cent fare "have been particularly unfavorable measured by the results on the bus lines."

"While the rail passenger revenue in the East was declining quite steadily in 1938 and until the World Fair travel commenced in the Spring of 1939," the report continues in the latter connection, "the intercity bus revenue in the same territory was steadily increasing. . . . In the first quarter of 1939, while the higher coach fare was generally in effect, one way and round trip, and before the World Fair travel commenced, the Eastern rail revenue declined $1,318,000, which happens to be about the same as the $1,467,000 in total revenue gained by the Eastern bus lines." Still another comparison with the bus results notes how the inroads which the motor carriers are making is illustrated by the fact that the ratio of rail coach traffic to bus traffic dropped from 254.67 to 194.76 per cent and the revenue ratio from 346.19 to 278.86 per cent in the August, 1938, -April, 1939, period as compared with the same months of the preceding years. Also, data on the average revenue per coach passenger mile indicates that the Eastern roads "made much greater use of excursion fares in the later than in the earlier period." And "not until the average passenger revenue again dropped below two cents a mile, in the Summer and early Fall of 1939, did the coach revenue show a substantial increase."

"The World Fair rates average less than 1.5 cents per mile, and are substantially lower than the average descending-scale fares, which do not reach two cents until about 450 miles. Such long hauls as 450 miles, of course, are much beyond the territory in which the most severe competition is experienced from either the bus or the private automobile. Since the bus competition was not met until the average rate reached less than two cents per mile, it seems clear that the descending-scale plan can not produce good revenue results at least for distances up to 450 miles."

The latter is said to have been demonstrated by an analysis of the passenger results on 28 Eastern roads for July, 1939, which showed that only about 12.3 per cent of the revenue was derived from the descending-scale fares; and that "by far the greatest percentage of gain was made on the lower rates in the descending scale."

Low World-Fair Rates Brought Last Year's Business

While thus conceding that the descending-scale fares have diverted some traffic from the buses to the rails, the commission gives more credit to the "relatively low World Fair rates." The latter, it says, "seems probable from the fact that the first month after such tickets were not in use the Eastern passenger revenue dropped under that of the same month in the preceding year by 6.5 per cent, while the South gained 3.1 per cent and the West 1.8 per cent."

Previously the commission had found data to show that prior to the introduction of the World Fair rates, the rail revenue loss under the 2.5 cent fare "was about five times as great as the revenue gained by the bus lines." This was said to indicate that the rail decline "was due aside from the general business recession, not only to the diversion to the bus lines but much more to the competition from the private automobile." And the commission thinks it is "doubtful" that the descending-scale fare "has diverted or is likely to divert more than a small volume of traffic from the private automobile." This is because the "great bulk" of private-automobile competition "is on relatively short hauls, and the descending scale does not afford an important reduction in the basic fare until the haul reaches about 450 miles—beyond that distance, of course, restoration of the two-cent basic fare would not disturb the present descending-scale rates."

Next the report considers the positions of individual Eastern roads, noting first the New York, New Haven & Hartford's "especially urgent plea" for continuance of the 2.5-cent rate; although that road, which made a better-than-average showing under that rate, made no suggestion that it is entitled to any different treatment than the other Eastern lines. The Boston & Maine's experience "has not enabled its passenger traffic manager to prefer either a two-cent or a 2.5-cent basic coach fare."

Fares Putting B. & O. Out of Passenger Business

Considerable space is devoted to a review of the Baltimore & Ohio's experience which has led the management of that road "to the firm conviction that only by an important change in the present fare structure can a substantial portion of the extensive travel by bus and private automobile be won back to the railroads and the passenger service of the latter be placed more nearly on a paying basis." The B. & O. "has no faith that the descending-scale plan of round-trip fares now fused into the Eastern fare structure will result in any material improvement in the passenger results"; it pointed out that "at the rate of loss in passenger revenue which it has been experiencing since the increased coach fare became effective, it will soon be practically out of the passenger business."

In fact, as the report states, the B. & O. would go further than a restoration of the two-cent coach rate; it would make the round-trip coach fare 1.5 cents, and for Pullmans it favors a reduced one-way fare of 2.5 cents, to be applied in chair cars without any additional Pullman charge for space, and a round-trip rate of 2.25 cents.

With reference to the contention that passenger revenue on the B. & O. is less than five per cent of the total revenue, and thus "the wishes of that road should not prevail," the commission has this to say: "Because of the important points which it serves, any reduction in the regular fares which the Baltimore & Ohio might make would have to be met, for competitive reasons, by most of the other Eastern roads West of New England. The Baltimore & Ohio has always been free, so far as any restrictions by this commission are concerned, to make such reductions, but it has not done so because of its reluctance in that manner to force its wishes upon its competitors."

The paragraph devoted to "opposition by traveling public" recalls that one person appeared in that role, although he is unnamed by the commission. It was John A. Hastings, former New York state senator, who is promoting the "postalized" fare plan. As in its previous report in the proceeding the commission finds that it had no record with which to pass upon such a plan. The remainder of the report quotes pertinent passages from prior reports of the commission on the Eastern fare situation and sets forth briefly the commission's present conclusions and findings.

Dissenter Mahaffie Remains Consistent

As noted above Commissioner Mahaffie's dissent was based on reasons set forth in his dissenting expressions accompanying prior reports in the proceeding. In this connection it may be recalled that when Commissioner Mahaffie disagreed with the majority in the first report on the Eastern-fare phase of Ex Parte 123 he asserted that the decision continued "the tradition of penuriousness" which had recently been honored when the commission refused to allow "adequate increases" in the freight-rate phase of that proceeding. He there added that the decision aptly illustrated the ever-present danger that "regulators, without financial responsibility for results, may be tempted to substitute their own judgment as to the problems of management for that of the actual managers." In the latter connection Mr. Mahaffie had previously observed that the majority disallowed the 2.5-cent fare at that time "on the grounds, in substance, that we understand the business better than do those conducting it."

When the second Ex Parte 123 report on passenger fares was issued, allowing the 18-months experiment with the 2.5-cent rate, Commissioner Mahaffie, concurring in part, agreed with the majority's finding that the increase had been justified; but he found no warrant for limiting it to a period of 18 months.

That the Baltimore & Ohio at least welcomes and will accept the Commission's order is indicated by a statement issued by President Daniel Willard on February 16: "The decision of the Interstate Commerce Commission making two cents a mile the maximum coach fare to be charged by the Eastern railroads, effective March 24, is naturally gratifying to the Baltimore & Ohio. As our testimony in the hearing on this case before the commission indicated, we feel that on the whole the two-cent maximum brought better results to the railroads in this territory than have the higher rates. We hope and believe that the public will respond to the lower rate in a way that will justify the decision of the commission and prove satisfactory to all the affected lines."

SHIPPERS IN THE TOTALITARIAN REICH must unload all freight cars as soon as possible, Sundays and holidays included, according to a recent decree, which stipulates heavy penalties for any tie-up of rolling-stock and counts Sundays and holidays as ordinary days for the calculation of demurrage.

S. 2009 Conferees Hit Through-Routes Snag

WASHINGTON, D. C.

DISAGREEMENT over the matter of including provisions of the so-called through-routes bill in S. 2009, the omnibus transportation bill, is developing into something of a deadlock which may prolong the conference-committee deliberations or even become a threat to final agreement on a conference report. This was understood to be the situation when the conferees resumed their meetings on February 21, although the policy of making no day-to-day announcements in connection with their work was adhered to.

The provisions of the through-routes bill, which would allow the Interstate Commerce Commission to prescribe through routes and joint rates without reference to the short-hauling of any road, are embodied in the Senate version of S. 2009, a bill embodying such provisions having passed the upper branch of Congress as a separate measure at the last regular session. The legislation is being sponsored by the American Short Line Railroad Association; but it is opposed by most of the larger roads, although the Association of American Railroads has taken no position. Seemingly there is considerable opposition in the House committee on interstate and foreign commerce which did not embody the through routes provisions in the House version of S. 2009; and which this week received from a sub-committee an adverse report on separate through-routes measures before it, the sub-committee recommending to the full committee that such measures be tabled. Thus the House conferees may be expected to hold out for the omission of the provisions from the conference report.

Jeffers Opposes Through-Routes Provisions

As noted above many of the larger railroads are opposing the provisions; and an expression of such opposition came in a telegram which W. M. Jeffers, president of the Union Pacific, sent on February 17 to Senator Reed, Republican of Kansas, one of the Senate conferees. In the telegram, made public by Senator Reed along with his reply, Mr. Jeffers told how he had asked General Freight Traffic Manager Wilcox of the U. P. to call on Senator Reed and "explain our position with respect to the through-routes provision" of S. 2009. "Generally speaking," Mr. Jeffers added, "I am sure you will find that the people of the West who are familiar with this situation including the vast majority of the employees of these Western lines feel that it would be much better for their interests and the interests of the Western railroads that this entire legislation be thrown out rather than upset and dislocate rail transportation throughout the West."

In his reply Senator Reed told Mr. Jeffers that he had a full discussion of the situation with Mr. Wilcox. The remainder of his telegram to the U. P. president reads as follows: "Some arbitrary actions by trunk-line railroads, especially the Union Pacific, has furnished argument for modification of present law. I am perhaps the best friend the trunk-line railroads have on the Senate side. Action of Union Pacific in inducing numerous telegrams has contrary effect on me. If it continues, I shall drop my effort to obtain reasonable compromise adjustment and go along with balance of Senate conferees on Senate bill as written. I don't think that generally speaking people of the West have any informed opinion on this subject. If Union Pacific is going to take the position indicated in your telegram of February

17th, so far as I am concerned, we will stop trying to comply with any recommendation of the committee-of-six of which former President Gray was a member. As you know that committee wrote the original bill which formed the basis of the Senate bill although, of course, some changes were made. I do not propose to be bulldozed by the Union Pacific Railroad. If you can't recognize when you have a friend really trying to do something for the general transportation situation, we would as well come to a realization of that fact now."

Chairman Wheeler is understood to share the general view of Senator Reed implied in the foregoing. In other connections in the past he has been heard to say that general legislation should not be approached by interested parties with the idea of opposing the whole unless they get all specific provisions the way they want them. In other words the chairman has often stressed the need for recognition of the fact that all legislation is a matter of compromise—nobody gets everything he wants.

R. L. E. A. and Harrington Amendment

Another development in connection with the conference committee's deliberations is the report that some of the conferees, at least, are becoming somewhat annoyed at the failure of the Railway Labor Executives' Association to take a public stand with respect to the Harrington "labor-protection" amendment in the House version. This amendment, which would have the effect of preventing any railroad consolidation, is being pushed by A. F. Whitney, president of the Brotherhood of Railroad Trainmen, who is not a member of R. L. E. A. The latter has taken no public position with respect to the Harrington amendment per se, although it endorsed the committee-of-six report and is generally understood to be satisfied with the Senate version's "labor-protection" provisions. These Senate provisions stipulate that the I. C. C. may condition its approval of any proposed consolidation upon the inclusion in the merger plan of equitable arrangements for taking care of any workers displaced. It has generally been anticipated that the I. C. C. would be guided in that connection by the so-called "Washington Agreement" negotiated sometime ago between the railroad labor organizations and the principal roads.

Meanwhile a new note—a pension breakdown scare—was introduced into the save-the-Harrington-amendment pleas by Representative Anderson, Democrat of St. Louis. In the appendix to the February 16 issue of the Congressional Record Mr. Anderson inserted a speech which appraised S. 2009 as "purely and simply a catering to monopoly without regard to the shipper, the public who pays the freight, or the employees who have made the American railroads what they are." He went on to complain about the increasing length of trains, although he favors "all forms of transportation that will give the public better and cheaper facilities for commerce." Also, Mr. Anderson is interested "in security for the worker and his continued employment."

From the latter he followed through to his estimate that S. 2009 without the Harrington amendment would throw 400,000 men out of employment. This estimate is somewhat higher than that of other advocates of this "employee-protection" provision sponsored by A. F. Whitney, president of the Brotherhood of Railroad Trainmen; they have talked about their concern for 225,000 men with some mention of 361,000. But Mr. Anderson cited "figures given in the Wall Street Journal" as authority for his estimate; and he proceeded to develop his aforementioned pension-breakdown argument.

When the Railroad Retirement Act was before Congress, he said, the House committee on interstate commerce "to a large extent" used a personnel basis of 1,200,000 workers to estimate anticipated income from the pension taxes. As Mr. Anderson recalled the situation the Secretary of the Treasury thought the figure was optimistic, but he was assured that as soon as business picked up railroad payrolls would follow suit. When this sequence did not work out to the extent anticipated, Mr. Anderson observed a search for other means "to refute the argument that was formerly advanced in favor of the Retirement Act." "Without the Harrington amendment," he went on, "nearly 50 per cent of existing railroad employment could be eliminated. You cannot destroy even one per cent of these jobs without vitally affecting the financial stability of the Railroad Retirement Act." In fact it is Mr. Anderson's opinion that S. 2009 as passed by the Senate "had in view the destruction of the Railroad Retirement Act so that the railroads could save approximately $20,000,000 a year in payroll tax, reducing by that figure the income derived by the (Railroad Retirement) Board from its collections."

"If we of the Congress even suggested doing to the Social Security Act and the beneficiaries under that act what is being done to the railroad worker by the omnibus transportation bill the whole nation would be up in arms," the gentleman from Missouri continued. "These railroad workers are deprived of the benefits of the Social Security Act. We cannot take away from them or invalidate by making ineffectual the only social legislation they have. There can be no compromise on this matter."

Next Mr. Anderson asserted that the executive council of the American Federation of Labor went on record as favoring the Harrington amendment on October 2, 1939—"and George M. Harrison, president of the Railway Labor Executives' Association, signed that report." He went on to say that "the Brotherhood of Railway Trainmen, which represents by far the largest membership of any of the so-called train-service brotherhoods, has been most active in support of the amendment."

In closing Mr. Anderson gave railroad management some advice on how to produce satisfactory net earnings. The showing of the Chesapeake & Ohio and Bessemer & Lake Erie, he said, "would indicate that if other railroads would study the system of operation" of those lines, such other roads could pay "big dividends," too,—"without coming to Congress for consolidations based on a system the primary purpose of which is to enable the monopoly to so fix rates that the cheaper forms of transportation will be destroyed."

Also, in the February 16 Record's appendix may be found the preface to a publication entitled "Deep Water." It was inserted by Representative Gulkin, Republican of New York, for the benefit of those of his colleagues who are watching meetings of the S. 2009 conferees closely, because they believe "that waterways are to stop-gap and safeguard against exorbitant transportation rates in these United States."

Whitney Using "Pension-Breakdown" Argument

That the "pension-breakdown" argument in support of the Harrington amendment is being advanced directly by President Whitney of the B. of R. T. was revealed in a speech delivered in the House on February 20 by Representative Alexander, Republican of Minnesota. Speaking during a debate on the recriprocal tariff agreements. Mr. Alexander called attention to what he considered the "relationship between the recriprocal-trade agreements and the railroads and the railroad employees,

(*Continued on page 378*)

Minimum Wage Hearings Continue

Railroad maintenance engineers warn committee that any increase in rates will mean an acceleration of mechanization and loss of jobs

WASHINGTON, D. C.

DURING the past week the railroad industry has produced a steady stream of witnesses, principally maintenance of way experts, who have stressed the fact to the Railroad Carrier Industry Committee that if the minimum wage in the industry is raised above 30 cents an hour, their roads will be forced to increase the mechanization of maintenance work with the resultant effect of decreasing employment in those branches. The Railroad Carrier Industry Committee of the Wage and Hour Division, Department of Labor, is conducting hearings to determine its recommendations as to future minimum wages on the railroads (up to a possible level of 40 cents an hour) which "will not substantially curtail employment."

While the carriers are attempting to show that they cannot afford the increase in wages and will be forced to increase their mechanization of maintenance work, the labor groups affected by the order are endeavoring, through the medium of cross-examination, to convince the committee that the railroads have no intention of increasing their maintenance mechanization any faster because of an iminent wage increase. Their position, thus far, appears to be that the railroads will continue and accelerate their mechanization program just as fast as they obtain the necessary funds, regardless of any increase in minimum hourly rates.

List of Witnesses Testifying

During the week the following witnesses gave their testimony before the committee: Edward B. Mittleman, economist for the Wages and Hours Administration; Dr. J. H. Parmelee, director of the Bureau of Railway Economics, Association of American Railroads; Dr. C. S. Duncan, economist of the A. A. R.; Robert Faries, assistant chief engineer of the Pennsylvania; H. W. Purvis, receiver and general manager of the Georgia & Florida; G. R. Smiley, chief engineer of the Louisville & Nashville; J. G. Kerr, chairman of the Traffic Executive Association, Southern Territory; D. R. Lincoln, assistant to the chief traffic officer of the Missouri Pacific; F. S. Schwinn, assistant chief engineer, Gulf Coast Lines; J. B. Akers, assistant chief engineer of the Southern; W. D. Simpson, assistant engineer, maintenance of way, of the Seaboard Air Line; and J. H. Morgan, engineer, maintenance of way, of the Florida East Coast.

The February 15 session was devoted entirely to the completion of testimony by Mr. Mittleman, who further explained his exhibit which had been introduced at the February 14 session and which was reviewed in last week's issue. At the conclusion of the hearing Mr. Mittleman was briefly cross-examined by D. P. Loomis, of counsel for the carriers. Mr. Loomis asked Mr. Mittleman whether or not he had made any study of mechanization on the railroads. The Wage and Hour economist had not, but his report on the railroad industry had drawn on all available sources for its conclusions on mechanization. He had, however, seen an unpublished study made by the Railroad Retirement Board on the potentialities of mechanization in the industry.

Dr. Parmelee Warns Against Increase

The first witness at the Friday session was Dr. Parmelee, who, after pointing out that the greatest relative reduction in railway employment has occurred among those classes of employees which have secured the greatest relative increase in wages, told the committee that "a further increase to those same employees, in the guise of an increase in the minimum hourly wage, will only accelerate a tendency which is already clearly at work."

Dr. Parmelee showed that from 1928 to 1939 the average hourly compensation of railway employees engaged in roadway and structure maintenance work had been increased by 17.3 per cent: the number of such employees had been reduced by 49 per cent. In the same period, the average hourly compensation of railway employees engaged in the maintenance of equipment had been increased by 13.2 per cent: the number of such employees had been reduced by 42.1 per cent. All other employees had received an increase of 10.4 per cent in average hourly compensation; their number had been reduced by 35.1 per cent.

"The significance of these figures," Dr. Parmelee said, "can hardly be overemphasized. Maintenance of way employees, with the lowest average hourly compensation, showed the largest relative increase in hourly compensation from 1928 to 1939, and at the same time experienced the greatest relative reduction in numbers. Maintenance of equipment employees with the next lowest hourly compensation, showed the next highest relative increase in average compensation from 1928 to 1939, and the second greatest relative reduction in numbers. All other groups combined, with the highest average hourly compensation, showed the smallest relative increase in average compensation from 1928 to 1939, and at the same time showed the smallest relative reduction in numbers. Curtailment of employment clearly exerted its most serious effect on the lowest rated employees, and those employees were the ones who during the period had received the greatest relative increase in compensation."

Increase Will Hasten Mechanization

Discussing the subject of further mechanization of maintenance of way work, Dr. Parmelee asserted that "the program needs only the stimulus of further wage increases to move forward at an even faster rate. This is especially true when the greater part of a particular

increase, as in the case of a minimum wage, falls upon a single group of carriers and is not evenly distributed over all the railways. The 20 railroads that would be principally affected by an increase in the minimum hourly wage have a larger percentage of mileage in bankruptcy than other carriers; operate 38 per cent of the total mileage, receive only 28 per cent of the total revenues, and earn less than 24 per cent of the total net railway operating income. Not only that, but the impact of an increase in the minimum hourly wage would be from seven to eight times as great on their net railway operating income as on the remainder of the Class I lines. Finally, these roads as a group have no net income whatever from which to meet any increase in the minimum hourly wage, but have suffered a net deficit in each of the last eight years. The poorer a carrier is, the harder a minimum wage order will hit it.

"These railroads, above all others, faced with the bulk of any increase in the present minimum hourly wage, would be driven by their lack of net income to seek ways and means of mechanizing their operations to the greatest possible extent. Having no income margin on which to draw, the alternative would seem to be a considerable and substantial curtailment of employment."

Dr. Duncan on Subsidies

Also, at the same session, the committee heard from Dr. Duncan that billions of public funds were being spent for the improvement of airways, highways and waterways to the detriment of the railroad industry.

"New work expenditures for navigation purposes on our inland waterways," Dr. Duncan testified, "amounted to $1,036,304,962 up to June 30, 1938. The total cost, to the same date, of maintaining these waterways was $309,333,119. There is now before Congress a rivers and harbors bill involving projects in every section of the country and involving a commitment for expenditures by the federal government of more than $400,000,000. In 1934 the Chief of Engineers, U. S. Army, declared that the Army engineers had listed hundreds of waterway projects for future development, for which the estimated total capital cost would be $8,000,000,000."

"Investment by government in highways and streets since 1920," he continued, "has been more than $17,800,000,000. This investment is continuing at the rate of about $2,000,000,000 per year in expenditures. There has been before Congress within the past two years a proposal for building super highways across the country at an estimated capital cost of $8,000,000,000. In a report on this proposal the Public Roads Administration substitutes a new program of inter-regional highways and the most recent estimates of capital cost for such highway improvements are $40,000,000,000 to be expended within the next 20 years.

"The revenues from truck transportation are variously estimated at from $1,000,000,000 to $3,000,000,000 per year. The lower figure is based on the for-hire carriers and the higher figure on all truck operations. We believe that the revenue on traffic diverted from the railroads by trucks now approximates $2,000,000,000 a year."

Cites Pipe Line Expansion

"There is a fourth competitor of the railroads, the pipe lines," concluded Dr. Duncan. "Crude oil in ever-increasing volume has been diverted from rail tank cars to oil pipe lines. There are today 115,000 miles of pipe line; and from the average annual tonnage of 1923-1925 there has been a reduction of 62.9 per cent of the amount of crude oil handled by the railroads. Also, the movement of gasoline by pipe line has increased from 12,760,000 barrels in 1931 to more than 85,000,000 barrels—16 per cent of the total domestic motor fuel demand—in 1938.

"With the continued expansion of highway, waterway and airway facilities by government expenditure and the continued expansion of oil, gasoline and gas pipe lines, the relative proportion of the total amount of transportation service performed by the railroads must inevitably decline. So long as the present policy of government to provide additional transportation facilities out of general taxes continues, so long will there be a continued and increasing diversion from the railroads.

Continuing the hearings on February 17 the committee next heard from Mr. Faries, who stated that the raising of the minimum wage on the railroads to 40 cents an hour would displace, through the increased use of machines, more than 17 per cent of all the track laborers affected by such a wage increase.

Pointing out that the increased wage costs have already resulted in a substantial replacement of men by machines in the railroad industry, Mr. Faries presented exhibits in which the carriers were separated into two groups, one in which the average straight time earnings of track laborers were in excess of 33 cents an hour, the other in which such earnings were 33 cents or less. In the higher wage group, he stated, investment in maintenance of way machinery per mile had increased from $221 in 1925 to $348 in 1940, or an increase of $22 for each one cent of the wage increases made to track labor during the period. In the lower wage group, he continued, investment per mile in such machines had increased from $137 in 1925 to $188 in 1940, an increase of $10.60 for each penny of wages.

Stating that the hourly earnings of track laborers were from 10 to 11 cents higher in the first group of carriers than in the second, the witness said that "There was fully twice the incentive to use machinery and equipment as the result of this 10 to 11-cent difference in hourly wage. In the higher wage group the effect of greater use of machinery, heavier rails, and other improvements in track has been to permit these carriers to maintain their tracks with fewer men per mile, in spite of heavier traffic density. It is clear that there is a field for extensive mechanization on the railways in the lower wage group, enabling them, if forced to do so by an increased minimum hourly wage, to reduce their man-hours per traffic unit to a figure comparable with that prevailing in the higher-wage group of carriers."

Carriers Will Increase Mechanization

Asserting that an average investment of $600 for mechanization is equivalent to the displacement of one man for a full year, Mr. Faries summarized reports of those carriers, which would be affected, as to their mechanization programs in case of an increase in the present minimum hourly wage. "An increase in the minimum wage to 40 cents an hour," he said, "would result in an increased investment in maintenance of way machinery amounting to $4,270,000. This greater degree of mechanization would displace 7,118 men, or 17.1 per cent of the total track laborers affected by an increase in the minimum hourly wage."

"When there is a better and cheaper way to do work," Mr. Faries concluded, "that is the way it should be done. The pressure forcing mechanization increases with each one cent increase in wages. The necessity for the adjustment to such increases should come very slowly and gradually to avoid any cumulative impact of mechaniza-

tion on employment, and this should be the desire of both labor and management."

Upon the conclusion of Mr. Faries' direct testimony, he was asked by Frank L. Mulholland, counsel for the labor groups affected by the order, whether or not an increase in mechanization followed an increase in revenues. Mr. Faries replied that the ability of an engineer to prove that machines would save the railroad money determined the amount of machinery purchased.

Pennsylvania to Buy More Machinery

"You have no different program for mechanization in the offing than has been carried out on your railroad for the last 20 years?" asked Mr. Mulholland. "Our budget for mechanization is increased this year," answered the Pennsylvania official.

"Can we assume that with increased operating income there will be increased mechanization?" queried the labor attorney. Mr. Faries' answer was that that would depend upon the pressure placed on the maintenance engineers. Then, Mr. Mulholland asked whether the witness thought that any railroad had delayed the purchase of machines when it had the money to make the purchase. Mr. Faries knew of some roads where such a situation had obtained.

At the beginning of the February 19 session the committee heard some brief testimony from Mr. Purvis. He stated that his road was now paying the 30-cent an hour minimum wage but he hinted that if this figure is increased immediately, it may mean cessation of operation for his company, which has been in bankruptcy since 1929. Questioned as to what wage the maintenance of way employees had received before the 25-cent minimum went into effect in October, 1938, Mr. Purvis said that at one time in 1932 these men received $1 and $1.10 a day.

He also informed the committee that his road was in arrears on its local and state taxes to the extent of $405,000. Asked why the local taxing authorities had permitted this situation to continue, he said that they desired the road to continue its operations so that the 600 employees in those communities would continue to get compensation.

Mr. Mulholland's only question on cross-examination was, "Have you considered whether your railroad could make any money if the men worked for nothing?" "No, we have not," answered the G. & F. receiver.

Smiley Describes L. & N. Situation

The next witness was Mr. Smiley, who corroborated Mr. Faries' testimony and described the extent and potentialities of mechanization of maintenance of way work on the L. & N. He admitted that his road did not have as many machines as the Pennsylvania, but said that there were many localities and operations where such machines could be profitably used if the wage rate were advanced to the 40-cent minimum which is possible under the law. He also said that if the 40-cent rate were put into effect immediately, his road could justify the purchase of $462,000 of new machinery.

The principal witness at the February 19 session was Mr. Kerr, who described in detail for the committee the various types of competition which are facing the roads in the southeastern section of the country. After painting a gloomy picture for the immediate future for the carriers, Mr. Kerr went on to say that "During the last session of Congress there was seriously considered by the Senate and House committees a number of rate-making bills which, if they had been passed, would, in my opinion, have bankrupted all of our southeastern railways. Probably as a result of this agitation, unfair and erroneous as most of it was and is, there is now under way a general investigation of a large part of our rate structure. The state regulatory commissions are practically all lined up against us, all demanding reductions in rail rates, but we see little real effort to regulate our competitors."

Says Rate Increase Would Be "Suicidal"

Asked whether these roads might increase rates to make up the increase in wages, Mr. Kerr described such an attempt as "suicidal." He also thought that there are no commodities at this time in the South which will bear a higher rate. To his way of thinking, the picture for the railroads is "exceedingly dark," with little hope for a decrease in federal expenditures for roads and waterways.

Mr. Lincoln presented exhibits to show that the roads in the southwestern section of the country have lost a large amount of tonnage to their competitors. His exhibits showed that from 1928 to 1938 the total less-than-carload tonnage transported by the southwestern railways declined 59 per cent, while in the same period there was a reduction of 63 per cent in the freight revenues received from such traffic. In 1928, the witness said, the southwestern railways transported a total of 4,113,797 tons of l.c.l. freight; in 1938, this total had fallen to 1,705,459 tons, a loss, in this one classification alone, of 2,408,338 tons. In 1928 the revenues received by the southwestern lines for the transportation of l.c.l. tonnage were $49,093,025. In 1938 these revenues had fallen to $18,264,314, a reduction of $30,828,711.

Mr. Schwinn told the committee that the Gulf Coast Lines and the International Great Northern would be justified in spending $109,000 for increased mechanization of maintenance of way equipment if the committee decides to raise the minimum wage to 40 cents an hour.

Southern Could Spend $545,000

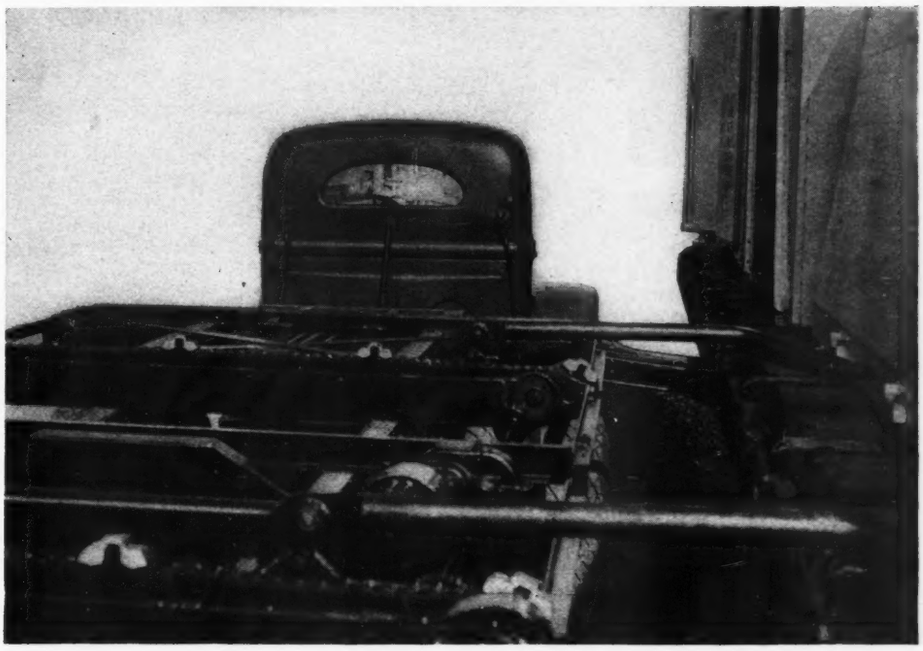
As far as the Southern is concerned, Mr. Akers said that his road could expend $545,000 for new machinery if the 40-cent rate is put into effect. He also told the committee that the recent five-cent-an-hour increase which went into effect last Fall, cost 400 men their jobs on the Southern because of the fact that he had to reduce his budget by that many men. He concluded his testimony by saying that the road was in good physical shape at present, but that there is some under-maintenance in rail.

Mr. Simpson testified that an increase on the Seaboard Air Line to 31 cents an hour would cost his road $105,113 a year, while the increase to the 40-cent rate would mean an added expenditure of some $1,109,147 yearly. Also, he pointed out, the 10-cent increase would result in the laying off of 752 men which would not be needed because of increased mechanization.

The 40-cent an hour minimum would mean for the Florida East Coast, according to Mr. Morgan, an added expenditure of $205,828 annually. He felt that he would have to ask for more machines so that the maintenance work could be further mechanized.

Mr. Mulholland wanted to know whether the section hands were being charged rent, now that the 30-cent minimum is in effect. Mr. Morgan admitted that such was the case, saying that the company was deducting 10 cents a day for rent for houses furnished to certain employees. He also said that these same houses had been occupied rent free before the 1939 increase.

Motor Transport Section



Photograph Shows a Truck Trailer with Fitch Conveyor in Position to Transfer Body From Railroad Flat Car in Co-ordinated Service

Motor Terminals Extends Rail-Highway Service

Ties in with Fruit Growers Express in operating rail-highway equipment for shipper-lease

ANNOUNCEMENT last week of the organization of the National Fitch Company jointly by the National Car Company, a Fruit Growers Express subsidiary, and Motor Terminals, Inc., for the leasing and operation of equipment for co-ordinated railroad and highway transportation marks the extension of the scope of Motor Terminals' service-offerings from relatively local and specialized situations to a nation-wide system for all types of shipments.

Motor Terminals, Inc., has been identified with the direct operation of equipment for co-ordinated service since 1917 when a subsidiary company, Cincinnati Motor Terminals Company, organized a service for the interchange of l. c. l. freight between railroad stations in the complicated Cincinnati (Ohio) terminal area by motor trucks and special demountable bodies. Its president, B. F. Fitch, has also been active for many years in extending the use of rail-highway equipment to other fields, including merchandise service on several electric interurban lines running out of Cincinnati. An affiliate company, the Motor-Rail Company, Inc., has been in operation for some years in co-ordinated service between New York, Philadelphia, Pa., and Baltimore, Md. In 1937 Motor Terminals designed and built special equipment for the transportation of bulk milk in demountable tanks which it leased to a dairy operating over the New York, Ontario & Western, which service and equipment was described in the *Railway Age* of August 27, 1938. Refinements and extension of the co-ordinated system to other types of lading were described in the issue for December 23, 1939, page 973.

Organization Set-Up

The National Fitch Company will act as sales agency for the lease of Fitch co-ordinated equipment to shippers, the patents for which have been assigned it by Motor Terminals. The National Car Company will supply and operate the specially-equipped flat-cars and transferable bodies or tanks used in the service as a private car line. The Association of American Railroads has already recognized Motor Terminals' equipment as suitable for interchange, with wheelage allowances of 1.5 and at 2.5 cents for freight and passenger equipment, respectively.

National Fitch will negotiate lease-rentals with ship-

Efficient Dispatching Saves Much Empty Mileage for the Motor Terminals Company

pers on an individual basis, the payments to reflect the investment in equipment as specified by the leasee. Wheelage allowances accruing will be credited up to, but not beyond, the amount of rental. The conveyor which is installed on truck or trailer chassis for the transfer of bodies to or from railroad flat-cars will be rented to either shippers or contract truck operators at $1.50 per day. It is arranged that shippers may also use standard chassis fitted only with skid rails in conjunction with a conveyor-fitted unit, the latter to operate both as a haulage vehicle and as a transfer medium between the extra vehicles and the railroad cars. In this way, shippers may operate a fleet of trucks in co-ordinated service without the necessity of installing a conveyor on every vehicle in the operation.

Fruit Growers Express Company, with headquarters at Washington, D. C., was organized in 1920 by 14 railroads participating in the movement of perishables from the southeast to Trunk Line, Central and New England territories as a private car line furnishing "reefers" for the transportation of fruits and vegetables and maintaining icing facilities at numerous points in the territory served. Its subsidiary, the National Car Company, owns and operates a total of 14,532 cars and maintains shops for their construction and maintenance at Alexandria, Va., and Indiana Harbor, Ind. It is controlled through ownership of its capital stock by the following carriers:

Atlantic Coast Line
Baltimore & Ohio
Central of Georgia
Chesapeake & Ohio
Chicago & Eastern Illinois
Florida East Coast
Louisville & Nashville
Nashville, Chattanooga & St. Louis
New York, New Haven & Hartford
Norfolk & Western
Pennsylvania
Richmond, Fredericksburg & Potomac
Seaboard Air Line
Southern and subsidiaries

Since Fruit Growers has not announced whether it will use the Fitch system in its own perishable services, it is understood that for the present its subsidiary will operate equipment for lease by outside shippers under arrangements negotiated by National Fitch.

Officers of the National Fitch Company will be: President, Benjamin F. Fitch, and Vice-President, Henry B. Spencer (president, Fruit Growers Express). Motor Terminals, Inc., will continue to operate l. c. l. interchange and pick-up and delivery service in Cincinnati as before. The former service was described in the *Railway Age* of February 26, 1938. The p. & d. operations present distinct problems for which Motor Terminals has recently developed interesting operating practices.

Cincinnati P. & D. Service Dispatched

The interchange trucks are run on regularly scheduled routes from one freighthouse to another, whereas the collection and delivery fleet operates on necessarily irregular runs, so that a different system had to be set up for the collection and delivery vehicles. The fleet engaged in this service normally consists of 41 Ford, White and International trucks, all of 1½ tons capacity. The recent increase in shipments of all kinds resulted in a materially increased flow of merchandise from and to the Cincinnati terminal area. To meet such occasions of increased demand beyond the normal capacity of the fleet, Motor Terminals has a standing arrangement in effect for hiring trucks to supplement its own fleet whenever necessary.

The truck fleet operates over a rough and hilly terminal area comprising 200 square miles, and, under the circumstances, a reliable check on each truck is essential. For this purpose, a truck dispatcher separate from the dispatchers who look after the interchange service, controls all movements of collection and delivery trucks. The first step was the establishment of certain regular routes between the freighthouses and the widely scattered industrial districts which characterize this terminal. Motor Terminals maintains foremen at several of the larger stations who make out the delivery routes and certain trucks are assigned definitely to certain stations. About 90 per cent of the work of these assigned trucks is delivering freight. By means of making regular runs insofar as possible, the dispatching of such trucks is kept on a relatively simple basis.

A certain proportion of the fleet is, of course, engaged in serving the casual shipper on irregular runs. Motor Terminals encourages shippers to call the dispatcher direct

rather than passing the call through the local railroads. As these calls come in, they are classified in accordance with 14 geographical districts into which the terminal has been divided. The trucks on regular runs to these districts call in every half hour to report their whereabouts, and, if they have the necessary space, are told where to go to pick up this "casual" merchandise. In this manner, many irregular runs are avoided and a greater average loading per truck is obtained. The drivers of such trucks as are engaged in casual runs also call in regularly, and they in turn pick up such freight as the regular runs, for some reason, are unable to handle.

As an added check, a daily consolidated driver's report is made out, showing each trip made during the day, separated as to collection and delivery and showing the tonnage handled, the time of departure and time of return to the freighthouse or the company's garage, as the case may be. In view of the varied nature of the work and the differences in terrain encountered, the tonnage and the time involved vary materially in the course of a day. A week's reports, however, coupled with the supervisors' knowledge of the terminal and of existing driving conditions, enables the officers to check performance thoroughly and to find any weak spots in the fleet.

Another Year of the Motor Carrier Bureau

I. C. C. division has settled most "grandfather" cases and is now concentrating on other matters

ACCORDING to the report of the Bureau of Motor Carriers, which was included in the annual report of the Interstate Commerce Commission, most of the 80,000 "grandfather" applications have now been settled, at least tentatively. The year 1939 therefore witnessed a change in the work of the bureau, which now concerns itself more and more with safety, enforcement and rates. Safety inspectors have been added to the field staff and the staff of attorneys and special agents engaged in detecting and prosecuting violations of the law has been augmented and partly decentralized by assigning these men to the field offices of the bureau.

Status of Enforcement

A material improvement has been affected in enforcement, although the bureau still lags far behind in the investigation of complaints. These came in at the rate of 561 per month last year, whereas only 475 per month were disposed of. The number of complaints on hand at the close of the previous year was 2,258, and the number has risen to 3,286 pending complaints now, as the result of the bureau's inability to handle more than 82 per cent of the complaints brought before it.

An analysis of the nature of the violations complained of shows the following:

Operating without authority	5,281
Nonobservance of rates and charges on file	2,008
Unification without authority	49
Nonobservance of safety regulations	65
Insurance requirements	286
Accounting requirements	6
Miscellaneous	326
Total (including complaints charging more than 1 violation)	8,021

Important Decisions

The report quotes a number of important decisions rendered by the bureau during 1939, of which the following are of specific reference to railroads:

"In Kansas City Southern Transport Company, Inc., Common Carrier Application, 10 M. C. C. 221, we authorized operations as a common carrier by motor vehicle of general commodities by a subsidiary of the Kansas City Southern between stations on the lines of the railroad, subject to five conditions designed to confine such operations to those auxiliary to, or supplemental of, the rail service.

"In a supplemental report in Acme Fast Freight, Inc., Common Carrier Application, 17 M. C. C. 549, decided by the Commission July 24, 1939, we found that tariffs naming what purported to be joint rates between certain freight forwarders and certain motor carriers were not in consonance with section 217 (a) of the act and were improperly on file. Hence we ordered that these tariffs be stricken from our files. Because of proceedings in court, the effective date of this order has been postponed.

"In Charles Bleich Common Carrier Application, 14 M. C. C. 662, we found that applicant in performing pickup and delivery service for a freight forwarder at railhead is a common carrier, and that the service is "under a common control, management, or arrangement for a continuous carriage or shipment" within the meaning of section 203 (b) (8), since the forwarder is a common carrier at common law.

"In New England Transportation Company Common Carrier Application, 12 M. C. C. 461, we found that a motor carrier's operation in substitution service for rail lines is that of a common carrier by motor vehicle.

"In Puget Sound Navigation Company—Control—Olympic Peninsula Motor Freight Company, 25 M. C. C. 53, we found that a water carrier, transporting passengers and property in conjunction with railroads under arrangements for continuous carriage or shipment, is a carrier as defined in section 1 (3) of part I, within the meaning of the proviso of section 213 (a) (1); also the proposed acquisition was found to be equivalent to the building of a branch or feeder line into territory not hitherto occupied, as no other interstate common carrier served the territory served by the motor carrier being acquired, and hence that the operations of the latter would be auxiliary or supplementary to the water operations of applicant.

"In Black Hills Stages, Inc.—Purchase—Black Hills Transportation, 25 M. C. C. 171, where applicant, a railroad subsidiary, was authorized to purchase operating

rights which would enter territory served by another railroad, the authorization was found justified because of public need for the co-ordinated rail-bus service proposed to be afforded and because the other railroad had failed to avail itself of an opportunity to provide such co-ordinated rail-bus service in its own behalf or to improve its rail service.

"In Southwestern Greyhound Lines, Inc.—Purchase—Lee, 25 M. C. C. 195, we found that the relation between applicant and a railroad by reason of ownership by the latter of a minority stock interest in applicant, and minority representation on its board of directors, did not amount to control and hence there was no affiliation as defined in section 5 (8) within the meaning of the proviso of section 213; and that irrespective of whether antitrust laws are involved, all forms of motor-carrier unifications are covered by section 213, and that paragraph (a) thereof enumerates the only forms of unification which are permitted under the act, subject to our approval."

In summing up its activities, the bureau states that much better regulation is in prospect. The report says:

"The completion of the informal handling of 'grandfather' applications has made it possible for supervisors on the field staff to devote more time to the instruction of carriers relative to the provisions of the act and the rules and regulations prescribed thereunder and to the investigation of violations thereof. The combination of increased instruction and enforcement is resulting in better compliance with the law and regulations and is aiding in the stabilization of the motor-carrier industry.

"Minimum rates for all common carriers by motor vehicle in three regions had previously been established after hearing. Proceedings for the purpose of establishing minimum rates for all such common carriers in three other sections have been instituted, as well as a proceeding designed to establish minimum rates for contract carriers by motor vehicle in one of the regions in which such rates have already been prescribed for common carriers. The proceeding in which minimum rates for motor common carriers in New England were prescribed has been reopened for the purpose of considering the reasonableness of the rates and rules now in effect, and of determining whether any general change is desirable.

"Numerous petitions for modifications of the minimum-rate orders have been filed by individual carriers and by groups of carriers to permit them to meet competition or new conditions in specific instances. Many requests for suspension and investigation of tariffs containing reduced rates have been filed by motor carriers in territory not covered by the minimum-rate orders.

"The relation between rates of motor and rail carriers has been at issue in a number of cases where motor carriers have attached specific rates filed by the rail carriers, and vice versa, and there have been some general investigations of the rates of both classes of carriers on specific commodities."

Co-Ordination at Houston

THE Houston North Shore, a Missouri Pacific subsidiary, is an extremely busy electric line operating through a thickly-settled industrial district for 26 miles between Houston and Goose Creek. This line operates 43 daily passenger schedules, in addition to freight service. However, it extends only as far as a station called McCarthy Avenue, in suburban Houston, 7 miles from the downtown union station. To give passengers through service to downtown Houston, the M. P. Transportation Company operates a shuttle system of buses between the union station and McCarthy Avenue, where the transfer is made between bus and train. This has been found more satisfactory to the passengers and at the same time more efficient and economical than operating the trains over street car tracks in the congested area of downtown Houston.

Baggage and Express Are Handled Over Highway and Railway by This Autorailer

There is a considerable volume of mail and express traffic destined to and originating at points on the Houston North Shore and the bus shuttle service did not provide the ideal solution for handling this traffic. Accordingly, the M. P. recently purchased an auto-railer, equipped for operation both on highway and rail, and this unit, making two round trips daily, now handles all express and mail traffic on the Houston North Shore, and avoids re-handling of such traffic, since, after operating on the rails for 26 miles from Goose Creek, it leaves the rails at McCarthy Avenue and proceeds to the union station on rubber tires over the city streets.

S. 2009 Conferees Hit Through-Routes Snag

(*Continued from page 371*)

with special reference to the railroad retirement act." Much of Mr. Alexander's talk consisted in reading a letter he had received from Mr. Whitney, the letter being in the form of a statement entitled "Railroad Retirement Act Threatened."

In the statement Mr. Whitney recalled how he had predicted in 1938 that the payroll on which the pension plan's taxes was based might not be attained in the future "if the railroads are permitted to continue to exploit labor through long trains, inadequate crews, and modern methods of efficiency." "Events appear to have substantiated this forecast," Mr. Whitney added. He went on to set forth his contention that S. 2009 without the Harrington amendment would throw at least 225,000 railroad employees out of work. "There is," Mr. Whitney added, "only one hope for railroad employees, and for the public generally, and that is the Harrington amendment . . . "

NEWS

Traffic Erosion Hits RR Economy

Sees threat to farmers' markets in policies which reduce r.r. traffic density

Preservation of traffic density on railroads by the elimination of subsidies to competitive forms of transportation is essential to the maintenance of economical distribution, according to C. E. Johnston, chairman of the Western Association of Railway Executives in an address before the Traffic Club of Omaha, Neb., on February 15. "The consideration of traffic density," he said, "is much the same as the appreciation of the economic wisdom of mass production. The railroads of America are the mass producers of transportation, and it is obviously in the mass movement of goods that the railroads excel. The railroads are unexcelled in their ability to move, over steel rails, great quantities of goods for long distances at an extremely low unit cost. The average transportation charge of the American railroads today is less than one cent per ton per mile, and notwithstanding this, they are faced with the specter of steady diminution and steady erosion of our traffic volume.

"In the consideration of this problem, we should distinguish between transportation in an industrial sense and as the mere collection and distribution of goods. Exclusive of short-haul collection and delivery service, that which is transported from Nebraska is the surplus produced and that which is transported into Nebraska very largely depends on the ability of the Nebraska producer to market his surplus.

"My information is that approximately 80 per cent of the output of your great meat packing institutions is sold east of Cleveland. It is 850 miles to Cleveland from Omaha and approximately 1,400 miles from Omaha to the eastern seaboard, and the ability of the Nebraska farmer to market those goods at the point or place where they are to be consumed, depends upon his ability to transport them to the point of consumption at a reasonable, low cost.

"The Nebraska farmer is in competition with those who produce similar products, but who are situated closer to the market. You depend almost exclusively upon railroad transportation to market those items which are the very basis of mid-western economics. The ability of the railroads to discharge their obligation in the marketing of these products depends upon the ability of the railroads to hold to the rails a sufficient density of traffic to make possible the application of the savings due and resulting directly from the movement of goods en masse.

"That is to say, shippers of grain and livestock in Nebraska depend upon the railroads to maintain low rates in handling their surpluses—I have said that products of mines, products of forests and grain account for 61 per cent of the railroad freight tonnage and account for but 38 per cent of railroad freight revenue—without fully realizing that for the railroads to maintain the lower level of rates for their surpluses, they must have the benefit of the traffic density necessary to maintain the balance, or 62 per cent of their revenue.

"The railroads in the western territory must move goods for a vast distance through and from a territory which is sparsely settled when compared with the industrial east. Because of the difference in distances and population, the people of the west are faced with a natural disadvantage in traffic density of more than two to one, when considering the position of our neighbors to the east. In the light of these basic facts, it seems clear that it is the part of common sense to do what we can to preserve to the railroads serving this area that density of traffic which is essential to the ability of the western producer to market his goods.

"Yet what has been the public policy pursued throughout the past ten or fifteen years? The railroads are and have been operated for a long time at only a fraction of their capacity; yet with almost unlimited ability to handle additional traffic, railroads are witnessing the constant and steady increase in the creation of additional facilities for transportation. These millions which have been and are spent for new and surplus facilities, are largely the money of the public—that is, the taxpayer's dollar. With an existing surplus in rail transport facilities, we have poured millions into the creation of public highways and waterways and have encouraged their use as freightways; thus impairing the ability of the railroads to perform that genuine transportation service which is vital to the very existence of this area."

C. N. R. Adds Four Hours To Shop Work Week

The Canadian National has announced that its locomotive repair shops will be placed on a 44-hour week, in place of the present 40-hour week, effective immediately. The step has been taken because of a "distinct upturn in business that has taken place and is continuing."

Export Traffic Soars at N. Y.

Reaches 714 cars daily in January, up 91 per cent over '39 —Other ports busy too

Export traffic through Atlantic and Gulf ports was materially greater in January this year than in the same month one year ago, the Association of American Railroads announced on February 19. The number of tons of export freight lightered at the port of New York in January was 91 per cent higher than in January, 1939, while at all other Atlantic and Gulf ports, total exports (except grain) was 42 per cent higher.

"Due to operation of the plan set up last November by the railroads in cooperation with shippers, exporters, steamship owners, and port authorities to control the movement of freight traffic passing through those ports to the extent necessary to prevent congestion, this increase is being handled smoothly and with no evidence of delay," the A. A. R. statement says.

At the port of New York there was an average of 714 cars of export freight lightered daily in January, compared with 686 in December. Despite the increase that has taken place in recent months in the amount of export traffic, a satisfactory situation so far as storage space on railroad piers continues to exist at the port of New York. Reports filed with G. C. Randall, Manager of Port Traffic showed that on February 15 of a total storage space for 8,300 cars of freight on covered piers there were only 3,200 cars in storage. In addition there was room for 4,200 cars on ground storage tracks.

"Much of the credit for the continued satisfactory situation that exists at the port of New York can be attributed to the cooperation of the steamship operators through the Traffic Advisory Committee of the Maritime Association of which E. J. Karr of the Calmar Line, is chairman," the A. A. R. points out, adding that "the New York Freight Forwarders & Brokers Association also has been helpful in keeping the lighterage situation 'liquid' by calling attention of its members to the fact that, so far as practicable, freight should be consolidated on one lighter instead of using two or more." In doing so that Association has pointed out that such handling oftentimes expedites the movement of freight because it avoids congestion of lightly loaded lighters at ship-side.

Due to the frozen condition of the St.

(*Continued on page 385*)

Tells Highway Officials Off

L. W. Horning, of A. A. R., sets highway officials straight on many subjects

The Association of Highway Officials of the North Atlantic States, at its convention in Atlantic City, N. J., last week, carried forward an unusual program. It invited L. W. Horning, regional director, Competitive Transportation Research, Eastern-Southern region, Association of American Railroads, to address its members. Not only that, but Mr. Horning was the only representative of any operating transportation agency to speak at the convention. The speaker pulled no punches but sailed with gusto into alleged "trade barriers," so-called "diversion," reciprocity and other favorite topics of the trucking industry and its friends.

Outlining the unequal positions of the various forms of transportation, Mr. Horning appealed to the engineers before him to go beyond their immediate jobs, and, inasmuch as their advice is most persuasive when public policies are being sounded, "to give advice courageously" and "not confuse what the public wants with the wishes and desires of special interests." He asked them to consider the facts with respect to highway propaganda, much of which he described as "hooey,' pointing out that engineers should not only consider technical aspects but economic and social as well.

Discussing "diversion" of gasoline taxes, the speaker declared: "In my opinion there is nothing any more sacred about a gallon of gasoline and a motor vehicle than there is about a home or any piece of real estate . . . there is danger to highway users in this propaganda about diversion. What, for example, is to prevent the ordinary taxpayer or home-owner from demanding that the money he pays in taxes for the support of general government be used exclusively for that purpose and not for highways, streets and bridges?"

Mr. Horning also took up the question of the reason for the interest of railroad men in highway questions. In answer to this implied criticism he expressed the opinion that "a proper discharge of our duty to our employees, our owners and the thousands of shippers wholly dependent upon railroads and the many governmental units relying upon our tax payments requires that we give this all-important subject serious consideration." He added that (1) about 14 per cent of the railroads' tax bill is spent for the construction and maintenance of highways, streets and bridges; (2) railroads are interested in influencing equality in privileges and regulation; (3) about 65,000 motor vehicles are operated in railroad pick-up and delivery service; (4) the 1,300,000 railroads employees are users of the highway in private automobiles; and (5) railroad employees are home owners and taxpayers.

Mr. Horning also had much to say of the inequalities of revenues enjoyed as between the railroads and inter-city motor trucks, and in showing how the latter take the "cream of the traffic" produced some statistics which have not been published hitherto. The I. C. C., in its last annual report, estimated that the ton-mile revenue of for-hire inter-city trucks was four cents, as compared with the railroads' average revenue of less than one cent. Using his own estimate that in 1938 inter-city trucks in competition with the railroads hauled 50,462,021,000 ton-miles of traffic, Mr. Horning arrived at a revenue figure of $2,018,480,000 (on the basis of the I. C. C. average) which is 35.9 per cent of the total railroad-truck revenues. Thus trucks, which hauled a comparatively small percentage of the tonnage, enjoyed a big slice out of total freight revenues.

The Spoiled Child Complex

"A truck owned by Harry Kadish & Son did a good job for many hours yesterday afternoon and early last night in clearing trucks from the Arch Hill. Many truck drivers were heard in no uncertain terms expressing their opinion of the State Highway Department. They said that they felt the State should give better service on a main highway and if it did not properly clear a place like the hill at Archville the State should at least have a truck there to help heavy vehicles through snow instead of the truck owners having to hire a private truck."*

And, while the State is doing this snow removal for the trucks, how's about assigning some of their men to keep railroad switches going, and remove ice and snow from station platforms?

* *From the Tarrytown, N. Y. Daily News*

Another Bill to Return Jobless Tax Payments to Rail Employees

Senator Barkley, Democrat of Kentucky, has introduced S. 3356 "to provide for the return to employees of contributions paid by them under unemployment-compensation laws, and to make funds available therefor." Like other similar bills recently introduced it is designed to return to railroad employees (now covered by the Railroad Unemployment Insurance Act) the contributions which they had previously made to state accounts in the Unemployment Trust Fund set up under the Social Security Act.

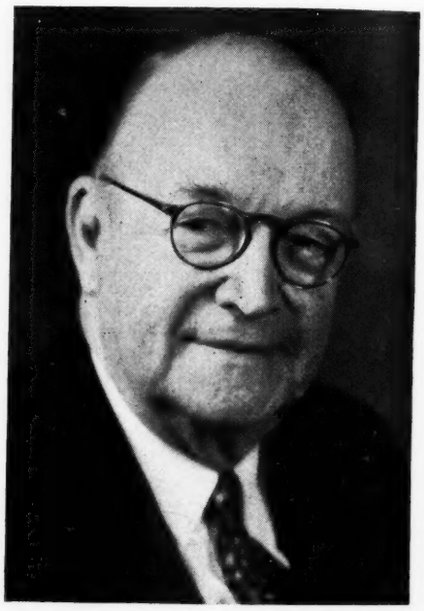
Cabooses Required on Terminal Freight Trains

The Illinois Commerce Commission has ordered the Terminal Railroad Association of St. Louis, Mo., to furnish caboose cars on all of its freight trains operating in and out of Illinois over the Eads and Merchants bridges over the Mississippi river as well as on 20 of its principal runs in the East St. Louis, Ill., switching district. The order followed a complaint filed by the Brotherhood of Railroad Trainmen which contended that the lack of cabooses menaced the life and health of switchmen who were forced to ride on the sides and tops of cars or on drawbars.

Six More RR'ers Honored by NAM

Research men of B. & O., S. P., and supply cos. named Modern Pioneers for work

Six inventors connected directly with the railroad field added to the list of those honored as "Modern Pioneers" by the National Association of Manufacturers which is awarding certificates to some 500 researchers chosen in 14 industrial regions of the country as being in the forefront of science's frontiers. At a regional dinner held in San Francisco, Cal., on February 14, George McCormick, general superintendent, and Frank E. Russell, mechanical engineer, Southern Pacific, received a joint award for research work done in collaboration. At the Rochester (N. Y.) dinner on February 19, Charles A. Campbell, engineer of tests, New York Air Brake Company, and Sedgwick N. Wight, engineer of train operation, General Railway Signal Company, were honored among other inventors from the region. In Baltimore, Md., on the same day, George H. Emerson, chief of motive power and equipment, and J. J. Tatum, assistant chief motive power and equipment, Baltimore & Ohio, were also named "Modern Pioneers."



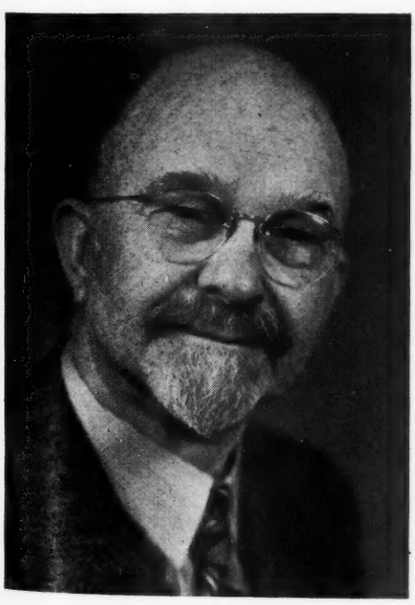
George McCormick

Messrs. McCormick and Russell were cited chiefly for their joint patent for a fusible boiler drop plug, which prevents boiler explosions due to lower water (described by Mr. Russell in the *Railway Age* of March 21, 1936). It was stated in their evaluation that since 1932, some 122 cases of low water were recorded on the Pacific lines of the S. P. and that in every case the plugs installed functioned effectively. Mr. McCormick has also received patent grants for a removable driving box; a driving tire retainer; a wheel cooler and several patents for new methods of lubri-

cation. Mr. Russell has received patents for a throttle lever mechanism; a combined body bolster and draw casting and an uncoupling-shaft locking device. Both Mr. McCormick and Mr. Russell have a joint application pending for the improvement of locomotive crank pins and bearings with respect to lubrication.

Mr. McCormick was born in 1872 at Columbus, Tex., and graduated from the Agricultural and Mechanical College at Bryan, Tex., with an M. E. degree in 1891. He entered the railroad field as an apprentice in the Southern Pacific shops at Houston, Tex., in 1891, was transferred to San Antonio as a draftsman and returned to Houston in 1895 as chief draftsman. In 1900 he was appointed mechanical engineer and in 1911 became assistant superintendent mechanical department, El Paso division. He was appointed assistant general manager, lines in Texas and Louisiana in 1913 with headquarters at Houston and in 1916 was appointed general superintendent motive power, Pacific system, with headquarters at San Francisco, Cal.

Mr. Russell was born in 1875 near Davis, Cal. After graduation from high school, he was employed by an electrical firm during which period he studied drafting in night school. In 1899 he entered service with the Southern Pacific at Sacramento, Cal., as laborer and was transferred to the store department in 1900. Later that year he was transferred to the mechanical engineer's office. After further study in drafting and mechanical engineering, he was promoted to lead locomotive draftsman in 1903 in connection with the preparation of designs for Harriman Lines standard locomotives. He became chief locomotive draftsman in 1906, in which position he arranged and installed the Southern Pacific Exhibit at the Panama-Pacific International Exposition in 1915.



Frank E. Russell

In 1917 he became assistant mechanical engineer and in 1924, mechanical engineer. He is a past president of the Pacific Railway Club.

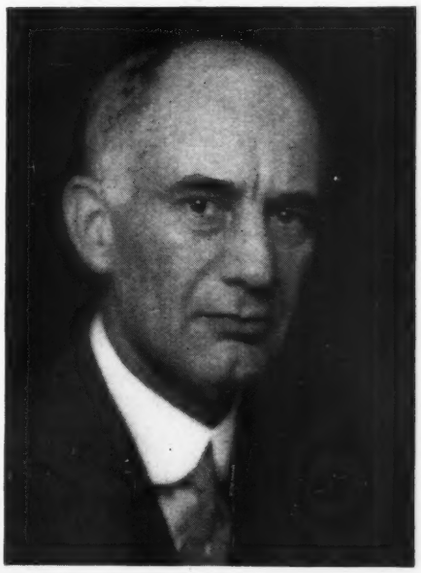
Mr. Campbell is the recipient of a total of 123 patents issued to him solely or jointly and has entered application for 16 additional grants. His most outstanding contribution to railroading may be said to be the development of a graduating type of retardation controller, known commercially as the Declekron, and the electro-pneumatic straight-air controlled brake system with which it functions. This type of braking has made possible the safe operation of high-speed, light-weight trains by improving stopping distance without requiring a higher maximum coefficient of adhesion between wheel and rail. Other of Mr. Campbell's patents have influenced to a marked degree the construction and function of the modern air brake for railroad freight trains. This equipment, known as the AB brake, has been adopted by the railroads for application to all cars in interchange service by 1945. Its adoption followed many years of investigation by the Interstate Commerce Commission and the

Charles A. Campbell

Association of American Railroads directed toward the discovery and development of a safe and flexible brake for long freight trains.

Mr. Campbell was born in 1893 in Harrisville, N. Y., and received his early education in Montreal, Que. During school vacation periods as a medical student, he served as apprentice draftsman with Allis Chalmers and Bullock Ltd., where he became interested in mechanical work and adopted it as his chosen profession. In 1910 Mr. Campbell accepted a position as draftsman with the New York Air Brake Company. A few years later he was selected as an apprentice for the Experimental department where he received background for his present position. In 1925, he was promoted to the position of engineer of tests, which he now holds.

Mr. Wight has been honored principally for his invention of centralized traffic control (C. T. C.), the fundamental patents for which were applied for in 1925 and 1926 and granted in 1937. First installed on 40 miles of the New York Central in 1927, C. T. C. now covers 1,663 miles of railroad in the United States, representing 190 separate installations. In his 22 years



Sedgwick N. Wight

of close association with railroad operating-control problems, Mr. Wight developed many other signaling devices, including the absolute block signal system in 1911.

Born in 1879 at Andover, Ohio, Mr. Wight graduated from Andover high school in 1897, entering Hiram College the following year. He entered the employ of the Lake Shore and Michigan Southern (now part of the New York Central) in 1903, and from 1905 to 1910, was signal inspector. He entered the employ of the General Railway Signal Company in 1910, becoming commercial engineer in 1911. In September, 1931, he was promoted to engineer of train operation, which position he holds today.

Details of the work and careers of Mr. Emerson and Mr. Tatum of the Baltimore & Ohio will be published in next week's *Railway Age*.

Bright Hues for Frisco Freight Cars

In order to add distinction to its fast merchandise trains, the Flashes, the St. Louis-San Francisco is replacing conventional cars with 150 cars that are painted light tan on the bodies and dark brown on the doors, ends and roofs, and with vivid orange lettering and markings.

Annuities and Pensions in Force on January 31

Annuities and pensions in force under the Railroad Retirement Act at the end of January totaled 139,406 and amounted to $8,782,640 a month. Compared with the end of December there were 586 more claims in force and the monthly amount payable was $42,085 higher.

This net increase was the smallest since the 1937 act was passed and continues the general downward trend of the monthly increase in number and amount of annuities and pensions in force. The small number of claims awaiting certification at present and the decreased volume of applications

received account for this tendency, according to the Railroad Retirement Board.

Collections under the Carriers Taxing Act in January amounted to $445,988. These taxes are applicable to 1939 payrolls and creditable compensation and are therefore payable at the rate of 2¾ per cent. In the first seven months of the fiscal year 1940 total collections were $57,695,201.

Would Bar St. Lawrence Treaty Negotiations

Representative Harter, Republican of New York, has introduced in the House a concurrent resolution which states that it is the sense of both houses that the Neutrality Act would be violated by the consummation of the now-pending St. Lawrence Seaway Treaty. The resolution also states that the Congress would refuse to appropriate any moneys to aid in the consummation of the plan or projects involved in the treaty and that both houses feel that negotiations should be terminated forthwith.

Would Have I. C. C. Issue Minimum Truck-Rate Order

Examiner T. Naftalin has recommended in a proposed report that the Interstate Commerce Commission issue a minimum rate order, putting a floor under class and commodity rates, with certain exceptions, of common-carrier truckers operating between points in Iowa and to and from certain points in Illinois, Indiana, Iowa, northeastern Kansas, northern Missouri, and eastern Nebraska. The title case is Ex Parte No. MC-23, and the minimum rates which the examiner would prescribe are generally speaking the rates prevailing at present.

New "400" Carries More Passengers

The new streamlined "400" of the Chicago & North Western, during its first four months of operation between Chicago and the Twin Cities, carried 51 per cent more passengers than did the original steam drawn conventional type "400" in the corresponding period a year ago. From October 1, 1939, to January 31, 1940, the new "400" carried 73,234 passengers, compared with 48,663 for a similar period a year ago when the train was not streamlined. In January, 1940, the new "400" handled 20,058 passengers compared with 12,895 in January, 1939.

To Study Possibilities of Trimming Florida Waterway to a Barge Canal

The Senate committee on commerce, on motion of Senator Pepper, Democrat of Florida, has adopted a resolution calling upon the Board of Engineers for Rivers and Harbors to review reports on the proposed Florida ship canal with a view to ascertaining whether it would be feasible to construct a barge canal instead. The bill which would have authorized the construction of the ship canal was beaten during the last regular session of the present Congress, the Senate rejecting the measure which had been reported without recommendation from the commerce committee after President Roosevelt had urged a renewal of consideration of the project.

Phillips Succeeds Harrison As R. L. E. A. Head

James A. Phillips, president of the Order of Railway Conductors and vice-chairman of the Railway Labor Executives Association, was elected chairman of the latter organization at a meeting in Washington on February 15, to succeed George M. Harrison, president of the Brotherhood of Railway & Steamship Clerks, Freight Handlers, Express and Station Employees, who resigned because "his brotherhood, which for some time has been experiencing an amazing growth, needed more of his time." A. E. Lyon, grand president of the Brotherhood of Railroad Signalmen of America, was elected vice-chairman to succeed Mr. Phillips, and Julius G. Luhrsen, president of the American Train Dispatchers Association, was elected executive secretary-treasurer for a period of three years.

Harris & Ewing

James A. Phillips

Mr. Phillips was born in 1873 near Louisville, Ill., and started to earn his living at the age of 15, carrying messages on the Ohio & Mississippi, now part of the Baltimore & Ohio. Later, he entered train service as a brakeman and switchman and was employed on several roads, including the Big Four, Illinois Central and the Rock Island. Active in union activities for many years, Mr. Phillips served as general chairman for the O. R. C. on the Rock Island from 1916 to 1919 and served as vice-president of the order from 1919 to 1934. He was elected its president at the Toronto, Ont., convention in 1934.

Retirement Board Hearings on Remuneration for Time Lost

The Railroad Retirement Board has now set April 2 as the date for hearings originally scheduled for March 1 to consider proposed revisions of present regulations under the Railroad Retirement Act with respect to "remuneration paid for time lost as an employee." The hearings will be held at the Board's offices in Washington, D. C.

The Board considers such revision necessary in order that the scope of the act's provisions on remuneration paid for time lost as an employee be clearly set out in the regulations and in order that "time lost" claims under the act may be adjudicated properly and covered employers may be guided in reporting compensation to the Board.

Rock Island Inaugurates "Rocky Mountain Special"

The "Rocky Mountain Special" will be placed in service by the Chicago, Rock Island & Pacific on a tri-weekly schedule between Chicago and Denver, Colo., and Colorado Springs, to handle the passenger business that is expected to result from the National Park Service campaign for a 1940 "Travel America Year." The train, consisting of standard Pullman sleeping cars, an observation lounge car, a dining car and deluxe chair cars, will be operated from June 21 to September 2, with departure from Chicago at 12:45 p. m. on Fridays, Saturdays and Sundays, and departure from Colorado Springs at 2:50 p. m. on Saturdays, Sundays and Mondays.

Tax Commissioners Elect Officers

The Western Association of Railway Tax Commissioners elected the following officers at its semi-annual meeting at Chicago on February 13: President, R. A. Miller, tax commissioner of the Chicago & North Western; vice-presidents, J. B. Angell, real estate and tax commissioner of the Chicago, Rock Island & Pacific, Karl W. Fischer, land and tax commissioner of the Chicago, Burlington & Quincy, and E. A. McCrary, tax commissioner of the Northern Pacific; and secretary-treasurer, O. G. Edwards, tax commissioner of the Chicago, Milwaukee, St. Paul & Pacific. The next regular meeting of the association will be held in St. Louis, Mo., on September 10.

Status of Inland Waterway Carriers Under Shipping Acts

Examiner J. H. Eisenhart, Jr., has recommended in a proposed report that the United States Maritime Commission find that the Inland Waterways Corporation, operating the Federal Barge Line, and the Mississippi Valley Barge Line Company are subject to that commission's regulatory jurisdiction insofar as they engage in the transportation of cargo between New Orleans, La., and Mississippi, Ohio and Missouri river points, when such cargo is received from or is destined to Pacific Coast ports, and moves under proportional rates. The proposed report was issued in a proceeding (No. 540) instituted to determine whether a reduction made by the respondents in proportional rates applicable on alcoholic liquors is reasonable. The examiner recommended a finding that the reduced proportional was not shown to be unlawful.

Eight Billion for Super-Highways with Jobs for Men Over 50

Another super-highway bill, carrying an authorization for an appropriation of $8,000,000,000, was introduced in the House of Representatives on February 15 by Repre-

sentative Snyder, Democrat of Pennsylvania. The bill (H.R. 8503) provides for the location, survey, and building of a system of three transcontinental highways and six north-south highways, the work to be carried out by the Department of the Interior in co-operation with the Bureau of Public Roads, the army engineers and interested state highway authorities.

Another provision is that stipulating that each contractor engaged in building the highways "shall employ, first, the unemployed men (between the ages of 50 and 65) of the region where his unit of highways is being built and pay them wages determined by the government authorities designated to set said wages and hours for the various types of work to be done."

January Operating Revenues 12.4 Per Cent Above Last Year

Preliminary reports from 87 Class I railroads, representing 82.6 per cent of total operating revenues, made public February 15 by the Association of American Railroads, show that those roads in January had estimated operating revenues amounting to $283,972,927 compared with $252,650,398 in the same month of 1939, and $364,086,551 in the same month of 1930. The January gross was 12.4 per cent above that for January, 1939, but 22 per cent below January, 1930.

Freight revenues of the 87 roads in January amounted to $232,287,837 compared with $202,931,457 in January, 1939, and $274,139,268 in January, 1930—14.5 per cent above the former but 15.3 per cent below the same month in 1930. Passenger revenues totaled $29,914,405 compared with $29,264,727 in January, 1939, and $58,207,609 in January, 1930—2.2 per cent above the former, but 48.6 per cent below the same month in 1930.

Would Let N. P. Subsidiary Buy Truck Route

Joint Board No. 123, composed of Austin B. Middleton of Montana and John J. Hancock of Wyoming, has recommended in a proposed report the conditional approval by the Interstate Commerce Commission of the Northern Pacific Transport Company's application for authority to purchase for $10,000 the operating rights and property of I. F. Hoy, doing business as the Red Lodge-Billings Truck on a 60-mile route between Billings, Mont. and Red Lodge. One condition which the joint board would attach to approval of the application would require a write-off over a period of ten years of the amount of the increase brought about by the transaction in the applicant's "Other Intangible Property" account, another would stipulate that the authority granted shall be subject to such limitations as the commission may find it necessary to impose "in order to insure that the service rendered shall be auxiliary or supplemental to the train service of the Northern Pacific and shall not unduly restrain competition."

Citrus Fruit to Baltimore

Outstanding fourth-section relief in connection with all-rail rates on citrus fruit from Florida origins to Baltimore, Md., will hereafter apply only in connection with rail charges not less than five cents per box higher than rates over competing truck-water routes, according to a recent decision of the Interstate Commerce Commission. The majority report by Commissioner Mahaffie stated that the imposition of the differential was desirable "as a curb on progressive rate cutting which has brought about the present rate situation."

The case, docketed as No. 28181 and embracing also Fourth Section Application 16028, arose when the railroads, in accordance with the fourth-section relief granted them, attempted to place their rates on the same basis as those over the truck-water routes. The truck and water lines countered by reducing their rates to restore the previous differential of five cents per box; and when the rail lines met this reduction, their competitors cut again. The rail lines were about to equalize their rates with this new truck-water basis when the commission's investigation of the situation was instituted. The proceedings were heard jointly with an investigation instituted by the United States Maritime Commission with respect to the water rates in effect from Florida to Baltimore. On November 9, 1939, the Maritime Commission issued a report (in Docket No. 510) finding that such water rates had not been shown to be unreasonable or otherwise unlawful.

Among other evidence the I. C. C. report reviews that upon which the railroads based their arguments for rate parity with their competitors, and discusses the shift of citrus fruit traffic from the rails to the boat lines. These discussions follow generally the proposed report of Examiner H. W. Archer which was reviewed in the *Railway Age* of August 26, 1939, page 319.

Mechanical Division to Meet June 27-28

The Mechanical Division of the Association of American Railroads will meet at the Stevens hotel, Chicago, on June 27 and 28.

Valentine's Day Blizzard Halts All But Railroad Traffic

The heavy blizzard which on St. Valentine's Day covered the Eastern states in a blanket of from 12 to 20 inches of snow and piled it up in young mountains in cuts and ridges slowed up railroad traffic generally but failed to put it out of commission, except in the Boston, Mass., area and isolated mountain regions. Inter-city bus lines, on the other hand, gave up the ghost altogether and waited until state highway crews opened a path for them. Service between New York and Cleveland, Ohio, and Pittsburgh, Pa., for example, was "recessed" for more than 24 hours while benevolent state highway departments battled with heavy drifts in the Alleghanies. Air lines suspended schedules until the storm lifted and airport lanes were cleared.

"Necessity" travelers and those marooned away from home turned to the railroads for transportation. The Central Vermont played the good Samaritan to scores of motorists marooned by drifts in the Winooski valley through the Green Mountains by stopping its "Washingtonian" express at a way station to pick them up from stranded automobiles and buses. All in all the carriers might well have placed placards in their car windows similar to those adopted by the International railways in Buffalo, N. Y., for its street cars during the period of heavy snows when the transit business soared temporarily, reading "Welcome Stranger".

Express Agency Wants Status Case Reconsidered by I. C. C.

The Railway Express Agency has petitioned the Interstate Commerce Commission for reargument and reconsideration before the entire commission of Division 5's recent report on the status of R. E. A. under the Motor Carrier Act. Division 5's report was reviewed in the *Railway Age* of January 13, page 137.

The petition for reconsideration sets forth R. E. A.'s belief that this report was in error "in that it fails to find that motor vehicle services performed by petitioners in the conduct of the express transportation business are subject wholly and exclusively" to the provisions of Part I of the Interstate Commerce Act and are not subject to the Motor Carrier Act. It is "inconceivable" to the Express Agency that "Congress intended to exercise new and independent regulation of express companies and express services by the artificial method of applying the provisions of the Motor Carrier Act to express companies and express services."

"Express companies," the petition adds, "have been subject to regulation for 30 years. There was no need for other or different regulation, but if there had been, the proper, logical and obvious method of providing such regulation would have been by amendment to the Interstate Commerce Act, Part I. The service is express service and has been and should be regulated as such."

Equipment Installed and On Order

Class I railroads in January put 4,983 new freight cars in service, the largest number installed in any January since 1930, at which time there were 8,709, the Association of American Railroads announced on February 23. In January, 1939, the railroads installed 1,020 new freight cars in service and in January, 1938, there were 2,148.

New locomotives put in service in January totaled 19, of which four were steam and 15 were electric and Diesel-electric. In January, 1939, 17 new locomotives were put in service, of which five were steam and 12 were electric and Diesel-electric. In January, 1938, new locomotives put in service totaled 44, of which 27 were steam and 17 were electric and Diesel-electric.

New freight cars on order on February 1 totaled 34,559 compared with 6,637 on February 1, 1939 and 6,563 on February 1, 1938. New freight cars on order February 1 this year included coal, 16,542; box, 16,803; refrigerator, 500; flat, 365; stock, 59; and miscellaneous, 290. Class I roads on February 1 had 139 new locomotives on order of which 77 were steam and 62 new electric and Diesel-electric. On the same

date last year, there were 84 on order of which 25 were steam and 59 electric and Diesel-electric, and on February 1, 1938, there were 131 on order. These included 110 steam and 21 electric and Diesel-electric locomotives.

New freight cars and locomotives leased or otherwise acquired are not included in the above figures.

Freight Car Loading

Carloading reports for the week ended February 17 were not available for publication at the time this issue went to press.

Loadings of revenue freight for the week ended February 10 totaled 626,903 cars, according to the Association of American Railroads. This was a decrease of 30,101 cars, or 4.6 per cent, below the preceding week, but an increase of 50,551 cars, or 8.8 per cent, above the corresponding week in 1939 and an increase of 83,912 cars, or 15.5 per cent, above the same week in 1938.

The summary as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For Week Ended Saturday, February 10

Districts	1940	1939	1938
Eastern	138,897	130,939	113,061
Allegheny	132,964	114,964	97,822
Pocahontas	47,353	39,711	39,918
Southern	96,839	92,136	91,082
Northwestern	72,179	63,724	65,079
Central Western	92,590	89,802	88,284
Southwestern	46,081	45,076	47,745
Total Western Districts	210,850	198,602	201,108
Total All Roads	626,903	576,352	542,991
Commodities			
Grain and grain products	29,174	28,809	32,256
Live stock	10,540	9,700	11,015
Coal	145,661	131,605	107,875
Coke	10,977	7,215	5,505
Forest products	29,263	23,539	26,853
Ore	9,812	8,429	7,136
Merchandise l.c.l.	147,442	148,406	146,897
Miscellaneous	244,034	218,649	205,454
February 10	626,903	576,352	542,991
February 3	657,004	573,127	564,740
January 27	649,488	590,459	553,176
January 20	645,822	586,656	570,233
January 13	667,713	582,244	580,740
Cumulative Total, 6 Weeks	3,839,322	3,438,209	3,364,448

In Canada.—Carloadings for the week ended February 10 totaled 49,734 compared with 50,607 cars for the previous week and 39,227 in the comparable 1939 week, according to the summary of the Dominion Bureau of Statistics.

Total for Canada:	Total Cars Loaded	Total Cars Rec'd from Connections
Feb. 10, 1940	49,734	24,721
Feb. 3, 1940	50,607	25,512
Jan. 27, 1940	50,077	24,341
Feb. 11, 1939	39,227	21,384
Cumulative Totals for Canada:		
Feb. 10, 1940	285,267	143,902
Feb. 11, 1939	238,081	125,689
Feb. 12, 1938	268,612	132,889

Waterway Pork Will Be Served in Smaller Portions

Acting upon the recommitted rivers and harbors bill, the Senate commerce committee on February 20 decided to split that $407,000,000 measure into four bills to cover separately the navigation projects, the flood-control works, the hydroelectric-power schemes and mixed projects. The split-up will be accomplished by a subcommittee which was expected to report the four bills to the full committee next week.

As noted in the *Railway Age* of February 10, page 298, where its recommittal was noted, this pending rivers and harbors bill is H. R. 6264 which passed the House at the last regular session with authorizations totaling $83,000,000 and came from the Senate committee on commerce as the aforementioned $407,000,000 measure.

Meanwhile at its February 20 session the committee on commerce also expressed disapproval, by a seven-to-six vote, of Senate Resolution 201 recently introduced by Senator Maloney, Democrat of Connecticut, to place limitations on the committee's power to amend rivers and harbors bills with authorizations for large-scale projects. The Maloney resolution is now pending before the Senate committee on rules; as noted at the end of the story headed "Railway Labor Wants Public-Need Studies of Waterway Projects" in the *Railway Age* of January 13, pages 141-42, it stipulated that the committee on commerce shall not amend any rivers and harbors bill by adding any project which will cost more than $5,000,000, and that if the committee does report a bill thus amended a point of order may be made against it.

Club Meetings

The Northwest Car Men's Association will hold its next meeting on March 4, at 8 p. m., at the Midway Club Rooms, St. Paul, Minn. A paper entitled "Truck Spring Snubbers" will be presented by W. G. Spieth, manager, Snubber department, American Steel Foundry Company, Chicago. Motion pictures will be exhibited.

The Canadian Railway Club will hold its next meeting on March 11 at the Windsor hotel, Montreal, Que. Lewis C. Ord, general manager, Canadian Associated Aircraft, Ltd., Montreal, will speak on "Development of Air Power and Some of the Resultant Production Problems."

The Car Department Association of St. Louis will hold its next meeting on March 19, at the Hotel DeSoto, St. Louis, Mo. A paper entitled "Safety Movement Evaluated" will be presented by C. F. Larson, superintendent safety, Missouri Pacific. A dinner will precede the meeting.

The Southern & Southwestern Railway Club will hold its next meeting on March 21, at the Ansley hotel, Atlanta, Ga. A motion picture, made by the Tennessee Coal Iron & Railroad Co., Birmingham, Ala., entitled "Making and Shaping of Steel" will be presented at the meeting.

A. R. E. A. Convention Program

The American Railway Engineering Association will hold its forty-first annual convention at the Palmer House, Chicago, on March 12-14. A special feature of this convention will be the annual luncheon on Wednesday noon, March 13, at which R. V. Fletcher, vice-president and general counsel of the Association of American Railroads will speak on The Outlook for Railroad Legislation. On Wednesday evening, members are invited to attend a meeting of the Western Railway Club at which the Chicago subway will be described by Philip Harrington, commissioner of the Department of Subways and Superhighways of the City of Chicago. The convention will adjourn at four o'clock on Tuesday afternoon to permit the members to attend the exhibit of the National Railway Appliances Association at the International Amphitheatre. Other features of the program follow:

Tuesday Morning, 9:45 A. M.

Convention opens
Address of President E. M. Hastings, chief engineer, R. F. & P.
Address by C. H. Buford, vice-president, operations and maintenance department, A.A.R.
Reports of the sceretary and the treasurer
Reports of standing committees on:
- Standardization
- Signals and interlocking
- Electricity
- Economics of Railway Location and Operation

Tuesday Afternoon, 2:00 P. M.

Reports of standing and special committees on:
- Highways
- Rules and Organization
- Clearances
- Waterways and Harbors
- Uniform General Contract Forms

Wednesday Morning, 9:00 A. M.

Reports of standing committees on:
- Economics of Railway Labor
- Ties
- Wood Preservation
- Roadway and Ballast
- Track

Wednesday Afternoon, 2:30 P. M.

Reports of standing and special committees on:
- Complete Roadway and Track Structure
- Rail
- Stresses in Railroad Track

Thursday Morning, 9:00 A. M.

Reports of standing committees on:
- Buildings
- Water Service, Fire Protection and Sanitation
- Yards and Terminals
- Records and Accounts
- Maintenance of Way Work Equipment
- Iron and Steel Structures

Thursday Afternoon, 2:00 P. M.

Reports of standing and special committees on:
- Masonry
- Wood Bridges and Trestles
- Special—Impact
- Special—Waterproofing of Railway Structures

Closing business

Estimated Weights on Citrus Fruits

The Interstate Commerce Commission in a report by Commissioner Mahaffie has found that the railroads have failed to justify a proposed revision of estimated weights on citrus fruits from California, Arizona, Texas and Florida to destinations throughout the country. This finding is without prejudice to the establishment of estimated weights "on the basis herein found to be lawful, subject to the condition that the resulting charges are reasonable, and in other respects, lawful."

In the latter connection the commission stated that "when estimated weights are used to compute transportation charges, respondents should maintain them on the basis of averages of actual weights." The proposed revision of the estimated weights, the report reveals, came about as a result of admonishments which the rail carriers have received "during recent years" to revise their published estimated weights on fruits and vegetables so that they would more nearly reflect the actual weights of the loaded containers. "This admonition," the report goes on, "resulted in the appointment of committees in the principal rate territories, under the supervision of the Association of American Railroads, to undertake and complete test weights of

fruits and vegetables. In the 1935-36 season respondents began the test weighing of citrus fruits on a comprehensive scale. The revised estimated weights under suspension were published as a result of the studies made."

The proceeding is docketed as I. & S. Docket No. 4511, and the report occupies 101 mimeographed sheets. A notation at the end states that Chairman Eastman and Commissioners Aitchison and Lee "concur in the result."

Twin Cities-Twin Ports Passenger Pool Will Continue

Pooling arrangements for passenger-train service between Minneapolis, Minn., and St. Paul and Duluth, Minn., and Superior, Wis., which have been in effect about 12 years with annual savings of approximately $1,000,000 for the railroads involved, will be permitted by the Interstate Commerce Commission to continue without change, according to a decision made public this week. The commission did suggest, however, that the parties at interest endeavor to arrive at a satisfactory solution of the question of improved service by conference and negotiation.

The decision follows further hearing in the proceeding, granted upon petitions filed by the Duluth Chamber of Commerce and the Minneapolis Traffic Association, which alleged that the pool has destroyed competition and resulted in inadequate service. Railroads involved are the Northern Pacific, Great Northern and Minneapolis, St. Paul & Sault Ste. Marie.

The record, the commission says in closing, shows that "existing passenger train service is not satisfactory. The service now being furnished undoubtedly does not measure up to the standard which the railroads should, and probably would, furnish if sufficient traffic were available to justify it. There is a large reservoir of traffic in the area in question which might or might not be tapped by the interested railroads, depending upon whether or not the service that could be offered would attract it. Considering all factors involved, both actual and speculative, it seems to us that the matter of an improved service is one which peculiarly lends itself to special study by the respondent railroads in conference with the petitioners and others interested. If an improved service can be worked out in this manner the chances of its successful operation would probably be greater than if it were ordered without such mutual consideration."

Commissioner Porter did not participate in the disposition of the proceeding.

Freight Traffic Group Organized to Boost Old Colony Business

The New York, New Haven & Hartford has formed a special freight traffic committee composed of railroad traffic representatives who will seek to increase freight business on the leased Old Colony to ease the losses incurred by unremunerative suburban passenger traffic in the South Shore section of Massachusetts. Members of the committee are visiting shippers throughout the region "to learn their problems with a view to solving them by making whatever adjustments possible."

The committee was introduced to the public at a luncheon in Whitman, Mass., on February 13, when some 70 railroad traffic men and representatives of South Shore Chambers of Commerce and private industries conferred in a "co-operative endeavor," to "Save the Old Colony Railroad." A. E. Whittemore, chairman of the Old Colony's Commuters' League, sent the following wire to the conference:

"The Old Colony Commuters' League from its inception has urged aggressive steps to reclaim passenger and freight traffic. We believe with understanding co-operation, a railroad can be restored to health and give quick and competitive freight service. Your freight promotion campaign is a move in the right direction. The commuters ask the support of the shippers for such efforts in their mutual interests. We urge again that you seek to learn all the shippers' problems and explain yours to them."

W. J. Fillingim, assistant sales and service agent of the New Haven, in discussing the work that the newly-organized committee has already done declared, "The individuals seen thus far have expressed a sincere desire and offered generously of their time to sit with us in making a thorough study of their own business and offering suggestions to see what can be done to build up the freight tonnage in this territory, which in turn will mean additional revenue and go a long way to reduce the deficit, and make this part of the railroad financially stronger. More freight tonnage, which means additional revenue, is needed; and we are hopeful of attaining this goal by devising means of giving you the service you want. The situation presents a mutual problem, and we believe it can be solved through cooperation of all of us."

Export Traffic Soars at N. Y.

(*Continued from page 379*)

Lawrence River, a large volume of Canadian wheat for export is now being moved through Portland, Maine, Boston, Mass., New York, Philadelphia, Pa., Baltimore, Md., and Norfolk, Va. This movement has been particularly heavy through the ports of Philadelphia and Baltimore, the volume in January at Philadelphia having been an increase of 250 per cent, and at Baltimore, an increase of 112 per cent compared with January, 1939. The volume of export traffic, other than grain, moving through Baltimore was 118 per cent greater in January this year than in the same month last year and at Philadelphia 30 per cent greater. At Norfolk export traffic, other than grain, was 6 per cent greater in January than in the same month last year. At the same time, there was an increase of 28 per cent in coastwise traffic through that port.

Movement of export freight, particularly cotton, at New Orleans, La., also was much greater in January than one year ago. General cargo unloaded at that port in January this year totaled 7,736 cars compared with 3,486 cars in January last year and 5,825 cars in December, 1939. This was an increase in January of 102 per cent compared with January the preceding year and 21 per cent compared with December, 1939.

Of the 420,033 bales of cotton received at New Orleans in January, 397,535 bales were for export; in January, 1939, cotton receipts at that port amounted to 69,927 bales, of which 49,281 bales were for export. Cotton export at New Orleans from August 1, 1939, to February 2, 1940, totaled 1,136,742 bales compared with 332,069 bales in the period from August 1, 1938, to February 2, 1939, or an increase of 242 per cent. Cotton exports from all ports in the period from August 1, 1939, to February 2, 1940, totaled 4,229,929 bales, an increase of 77 per cent compared with the same period in the preceding year.

The volume of exports other than grain from the six principal Texas ports of Beaumont, Port Arthur, Texas City, Houston, Galveston and Corpus Christi, in January this year, increased approximately 45 per cent, compared with the same month last year. Coastwise traffic showed an increase of 30 per cent.

Court and County Refuse Gasoline Pipe Line Easement in Georgia

The Central of Georgia has won the first round in litigation with the Southeastern Pipe Line Company of Atlanta, Ga., over the right of the latter to construct a gasoline pipe line beneath its tracks in 7 counties. Judge W. H. Barrett of the United States district court at Savannah, Ga., on February 13, denied the pipe line company right-of-way intersecting the railroad tracks as requested. His ruling hinged on a 1937 state statute on which the application was based, holding that the law did not give the authority indicated. Bibb county commissioners, on the same date, turned down a petition from the same company for permission to construct its line over county-owned property and beneath county highways.

Big Trans-Canada Lumber Movement

Canadian railways and port facilities in the East will benefit largely from Britain's purchases of 400,000,000 feet of British Columbia timber which, because of the hazards of non-convoyed vessels between Vancouver and Halifax, via the Panama canal, is to be moved by rail across Canada.

Prospects of this large rail business, however, have caused a dispute between the railways and the British Columbia lumber interests over rates and a hearing on the dispute was held before the Transport Commission in Ottawa last week. It resulted in the Commission advising the roads and the shippers to get together outside and adjust their differences. An agreement has been reached but the terms have not yet been announced.

The lumber operators wanted continuation of the special summer freight rate of 60 cents per 100 lb. for timber and 85 cents for lumber, but the railways had insisted on the general rate of 85 cents regardless of whether it was lumber or timber.

Equipment and Supplies

Wabash to Spend $746,352

The Wabash has been authorized by the federal district court to spend $746,352, of which $283,400 is for ballast, $128,555 is for passenger car improvements, $93,500 is for signals and $240,897 is for miscellaneous equipment and improvements.

D. & R. G. W. to Spend $500,000

The Denver & Rio Grande Western has been authorized by the federal district court to spend $500,000 for signaling, buildings and machinery. The major items include: The installation of centralized train control from Dotsero, Colo., to Chacra, 26 miles, and 8 miles each from present CTC control starting at Grand Junction, Colo., $221,000; the installation of automatic block signals across the entire 38-mile length of the Dotsero cutoff from Bond to Dotsero, $109,850; the construction of a new coach yard building, ice house and battery house at Burnham, Colo., $46,000 (a previous authorization provides for the construction of a commissary building at Burnham, to cost $42,150); modernization of offices and new office equipment at Denver, Colo. and Salt Lake City, Utah, $19,633; new roadway machinery, $14,790; improvements to stockyard facilities at Walsenburg, Colo., $1,500; additional trackage at the Roper freight yard, Salt Lake City, Utah, $8,700; ballast between Crookton, Colo. and Bonito, $10,000; a Diesel tractor and accessories, $9,700; and rearrangement of tracks and structures at the Grand Junction, Colo. roundhouse, $21,000.

LOCOMOTIVES

THE NEW YORK CENTRAL is inquiring for 25 locomotives of the 4-8-2 type.

FREIGHT CARS

THE NEW YORK CENTRAL is inquiring for 1,000 freight cars.

THE UNITED STATES WAR DEPARTMENT, CHIEF OF ENGINEERS, WASHINGTON, D. C., reported in the *Railway Age* of December 30, as inquiring for 24 box cars, and six flat cars, all of 40 tons, capacity, has ordered 24 steel box cars from the Greenville Steel Car Company and six flat cars from the Haffner-Thrall Car Company.

THE UNITED STATES NAVY DEPARTMENT, BUREAU OF SUPPLIES AND ACCOUNTS, recently opened bids for two flat cars, one steel gondola car and one steel box car, all of 50 tons' capacity. The Haffner-Thrall Car Company submitted the lowest bids for this equipment. Bids were also received for one 10,000-gal. tank car for which the lowest bid was submitted by the General American Transportation Corporation.

THE NEW YORK, CHICAGO & ST. LOUIS has ordered 50 covered hopper cars of 70 tons' capacity from the American Car & Foundry Co., and 10 gondola-type container cars of 100 tons' capacity, together with 110 steel containers, from the Pullman-Standard Car Manufacturing Company. This new equipment is to be delivered for service at the end of April. Inquiry for this equipment was reported in the *Railway Age* of February 17, page 342.

PASSENGER CARS

THE PACIFIC ELECTRIC has ordered 10 Presidents Conference Committee passenger cars from the Pullman-Standard Car Manufacturing Company.

Supply Trade

Fairbanks, Morse & Company

The annual report of Fairbanks, Morse & Company for 1939, shows a net profit of $2,469,884, as compared with $558,539 in 1938. Sales for the year amounted to $24,489,629, as compared with $20,957,451 in 1938. Current assets totalled $18,556,933 and current liabilities, $3,560,993. The cash balance as of December 31, was $3,577,005 which, with one exception, is larger than that of any year in the history of the company.

Chicago Railway Equipment Company

The annual report of the Chicago Railway Equipment Company for 1939 shows a net profit of $243,680, as compared with a loss of $40,987 in 1938. Substantial expenditures were made during the year in order to maintain the properties in good physical condition and to further improve the efficiency of manufacturing facilities. Current assets at the end of 1939 amounted to $2,513,742 and current liabilities to $402,811.

American Steel Foundries

The annual report of the American Steel Foundries for 1939, shows a net profit of $1,368,514, compared with a net loss in 1938 of $1,750,235. Gross sales, less discounts, returns and allowances, amounted to $18,725,061 in 1939, as compared with $12,207,205 in 1938. Current assets at the end of the year amounted to $14,964,774 and current liabilities to $1,910,128. During the year, the stated book value of the capital of the company was reduced from $42,294,320 to $24,202,060 and the reduction transferred to capital surplus.

Safety Car Heating & Lighting Annual Report

The annual report of the Safety Car Heating & Lighting Co., Inc., for the year ended December 31, 1939, shows a net profit for the year of $341,535 as compared with $127,995 in 1938. Dividends of $3.50 per share totalling $329,091, were paid during the year, compared with a $2 dividend disbursed in 1938. The earned surplus as of December 31, 1939, was $1,106,100.

W. L. Conwell, president of the company, in his report to stockholders, pointed out that equipment of the company has been kept up in line with the most modern methods of factory practice. He believed that a continuance in 1940 of the moderate improvement in business enjoyed during 1939 will probably depend upon general business conditions which are directly reflected in railroad earnings and purchases.

Lima Annual Report for 1939

The Lima Locomotive Works, Inc., in its annual report for the year ended December 31, 1939, declares a net loss for the year of $134,326, compared with a net loss for 1938 of $687,035. The earned surplus account at the end of the year showed an operating deficit of $561,680. The volume of sales billed during 1939 amounted to $5,291,497, as compared with a volume of $3,208,400 in the previous year. The works shipped 14 locomotives during the year as compared with 10 in 1938. The sales of the Shovel & Crane division represented a substantial increase in comparison with sales in 1938, and the profit from this division offset materially losses in the Locomotive division resulting from the low volume of locomotive orders received.

In his report to stockholders, S. G. Allen, chairman of the board, declared, "Entering 1940 with the level of freight traffic approximately 12 per cent higher than a year ago, and with the expectation that this rate of betterment will continue for some time, encouragement is lent to the hope that equipment purchases by the railroads will be greater during the current year than in 1939. While in the last analysis sustained higher car loadings and the assurance of a continuance of correspondingly satisfactory net operating income are required to warrant more liberal capital expenditures, the steady increase in obsolescence in the railway equipment inventory is another important factor that must ultimately weigh heavily in favor of more extensive equipment buying, provided that other controlling factors do not suffer material deterioration."

American Brake Shoe & Foundry Co. Annual Report

The American Brake Shoe & Foundry Co. in its report for the year ended December 31, 1939, declares consolidated net sales for the year of $24,601,796 and a net income for the year of $2,121,173, which after preferred dividends equals $2.39 per share on the common stock outstanding. This compares with consolidated net sales of $19,042,148 in 1938 and a net income of $1,080,719, equal to $1.03 on common stock. Shipments during 1939 were 30 per cent above 1938's volume and constituted $32,700,000, including those of subsidiaries. Each month showed an increase over the corresponding month of the previous year. Export shipments of approximately $900,000 were 75 per cent in excess of those in 1938.

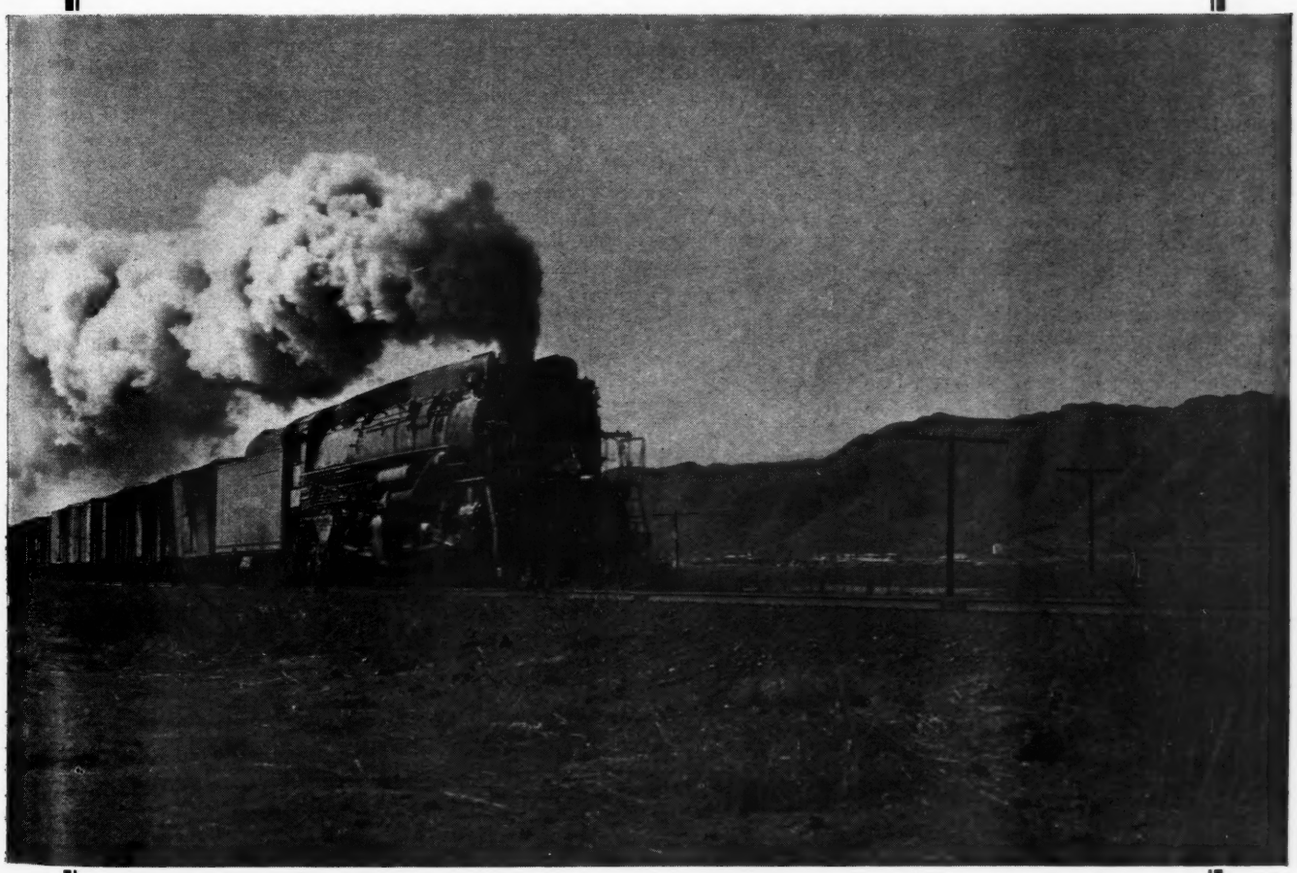
W. B. Given, president, in his statement to stockholders, pointed out that the cost of research was $276,236 in 1939, an increase of $57,356 over the previous year. It was his opinion that although such expenditures do not yet produce current earnings commensurate with their amount, it is important to the company's future that

Continued on next left-hand page

Better results at lower costs

WITH MODERN STEAM POWER

With the increasing demand for speed in handling both Passenger and Freight traffic, consideration must be given to the Locomotive. Speed has never been a limitation of the Steam Locomotive, but "*Modern* Steam Power" can meet the new demands more economically. Whatever type operating conditions require, a "Modern Steam Locomotive" can produce better results with savings in operating costs.



LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO

LIMA
LOCOMOTIVE WORKS
INCORPORATED

the work be vigorously continued. In discussing the reason for the retention of a substantial portion of 1939 earnings to strengthen the company's position, he declared that "there will be other periods of low operations and that the company should be prepared for them." He added that "it must be borne in mind that the company's degree of dependence on one industry, the railroads, although it has been reduced to approximately 50 per cent, is still an inherent weakness" and that future expansion into other fields will require substantial expenditures. During the year the company acquired a chilled iron wheel plant at Houston, Tex., and entered into an agreement to purchase the brake shoe plant in Buffalo, N. Y., which has been under lease for over 35 years. It has disposed of a malleable iron plant in Owosso, Mich., not operated since 1932, and a wheel plant at Hammond, Ind.

Baldwin Locomotive Annual Report

The Baldwin Locomotive Works reports for the year ended December 31, 1939, a consolidated net profit after provision for depreciation and interest of $542,026, compared with a consolidated net loss of $1,032,641 in 1938. Consolidated sales during the year totalled $31,463,045, of which total sales of locomotives and locomotive products comprised $11,363,200. In 1938 consolidated sales totalled $33,107,564, of which $16,767,781 represented locomotive products. The company had $44,215,799 of unfilled orders on hand at the close of 1939, of which $4,641,373 was for new locomotives. At the end of 1938, the total unfilled orders amounted to $13,401,321, of which $1,278,018 was for new locomotives.

During the year the Midvale Company, a partially owned subsidiary, earned a net profit of $1,703,771, as compared with $1,244,210 in 1938. The year was outstanding in the history of the company in that the dollar value of contracts and orders received was nearly three times the amount received in any year since organization of the company in 1923. Sales for 1939 exceeded those for 1938 by about 23%. The volume of unfilled orders on hand at the end of 1939 amounted to $28,566,167, as compared with $7,689,387 at the end of 1938. The Baldwin Locomotive Works shared in the earnings of Midvale to the extent of $1,047,942 during 1939, as compared with $765,353 in 1938.

Charles E. Brinley, Baldwin president, in his statement to stockholders, pointed out that the first six months of 1939 was a comparatively dull period, but that the general European war, among other factors, brought a demand for heavy and durable goods in the latter part of the year. The program of preparedness undertaken by the American railroads was cited as being of "important value to Baldwin and particularly to its subsidiary, the Standard Steel Works Company." However, in this improvement, there was to be noted a distinct lack of balance in the orders received by the consolidated company. Each of the subsidiary divisions, including The Midvale Company, may be said to have done moderately well, but the main plant at Eddystone, originally constructed and previously maintained for the production of steam locomotives, received but a fraction of the business needed for satisfactory operation. He reported that Baldwin had 37 new steam locomotives on order or under construction at the beginning of 1940.

Mr. Brinley also devoted attention to the serious entrance by Baldwin early in 1939 into the Diesel locomotive field on a competitive basis. He reported that switching locomotives of two principal standard sizes have been designed and constructed and that it is the intention of the company to develop Diesel power for passenger service as well.

Joseph T. Ryerson & Son, Inc., Chicago, has completed a reconstruction and expansion program at its plant in Philadelphia whereby floor space has been increased 250,000 sq. ft. to accommodate 1,750 new items. The improvements include a high-bay type mill building 185 ft. by 120 ft. and a finished products building with 20,000 sq. ft. of storage space as well as modern cutting equipment, a new heating plant and office improvements.

Charles E. Wilson, vice-president since 1934, in charge of the Pacific Coast operations of the **Worthington Pump & Machinery Corporation,** has moved his headquarters to the home office at Harrison, N. J. He will direct the sales of all products handled by the corporation's Carbondale division; which specializes in air-conditioning and refrigeration equipment. In this work he succeeds **H. A. Feldbush** who will devote his time to the manufacturing department. Mr. Wilson is also assuming directional charge of the sales of all products built at the Holyoke, Mass., factory.

Construction

CANADIAN NATIONAL.—A contract has been awarded the Dominion Bridge Company, Winnipeg, Man., for the construction of the superstructure of a 225-ft. steel span highway bridge over the Athabaska river near Jasper, Alta., which, with the construction of about 1.2 miles of new highway, will provide a new approach to Jasper Park Lodge. The abutments of this bridge are being constructed by Canadian National forces. The total cost of the project will be about $50,000 for the bridge and $15,000 for the road work.

CHICAGO & NORTH WESTERN.—The Department of Highways of the State of Minnesota has awarded a contract amounting to $37,425 to A. T. Nolan, Minneapolis, Minn., for the construction of a highway bridge over a track of the North Western at Minnesota City, Minn. The bridge will consist of one 53-ft. through plate girder span with two 43-ft. I-beam approach spans, and will provide a 32-ft. roadway. Other work in connection with this project, to be performed by the railroad at a cost of approximately $44,700, will consist of raising an adjacent railroad bridge over a stream, extending a culvert and track and depot platform changes.

Financial

BALTIMORE & OHIO.—*Purchase of Winchester & Wardensville.*—This road has purchased the line and equipment of the Winchester & Wardensville, a 23-mile line between Winchester, Va., and Rock Enon, connecting with the B. & O. at the former point. The road was sold by its receiver, D. H. Semcindiver, at a public auction to the B. & O. for $48,300. Passenger service on the road has been discontinued for several years.

CENTRAL OF NEW JERSEY.—*Salary of Trustees.*—Division 4 of the Interstate Commerce Commission has ordered that Shelton Pitney and Walter P. Gardner, respectively, be paid $15,000 and $12,000 annually for their services as trustees of this company in reorganization proceedings under section 77 of the Bankruptcy Act.

CHESTERFIELD & LANCASTER.—*Sale to H. E. Salzberg Company.*—This 32-mile short line operating between Cheraw, S. C. and Pageland, has been sold at auction to the H. E. Salzberg Company of New York, scrap dealers and operators of a group of short lines, for $40,400, which sale was confirmed in the Federal District Court at Columbia, S. C., on February 20. Formerly operated by L. R. Powell, Jr., and H. W. Anderson, receivers for the Seaboard Air Line, the line will be kept in service until at least midnight of March 11, according to court directions.

CHICAGO GREAT WESTERN.—*Reorganization.*—Division 4 of the Interstate Commerce Commission has certified to the United States District Court for the Northern District of Illinois, Eastern Division, that in the recent balloting on a reorganization plan for this company under section 77 of the Bankruptcy Act the following results were obtained:

1. That creditors of class 6, holding $15,439,000 of first mortgage bonds, constituting (with accrued interest) 99.42 per cent of the total allowed claims of that class, voting on the plan, accepted the plan and that creditors of that class holding $90,000 of bonds, constituting 0.58 per cent of the total claims, voted to reject the plan.

2. That stockholders of class 12, holding 244,208 shares of preferred stock, constituting (with accumulated preferred dividends) 99.14 per cent of the total of the allowed claims of that class, voting on the plan, accepted the plan, and that stockholders holding 2,114 shares of preferred stock, constituting 0.86 per cent of the total voted to reject the plan.

Division 4 also certified that holders of $741,000 of first mortgage bonds and 5,255 shares of preferred stock submitted defective ballots which were not counted.

ERIE.—*Certificates of Indebtedness.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to issue a non-negotiable certificate of indebtedness for $990,200, to be delivered to the City Bank Farmers Trust Company, as trustee under the first consolidated mortgage of the Erie in substitution for a note for $495,100 issued without the authoriza-

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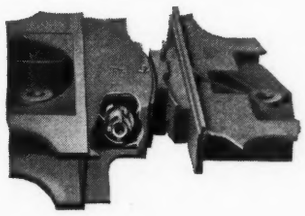
E-2 Buffers maintain a STEADY engine-tender connection on modernized M. & St. L. Mikados



DURING the recent modernization of these Mikados new tenders were applied, with a capacity of 18 tons of coal and 11,000 gallons of water. As the center of gravity of these new tenders was much higher than that of the previous tenders it was important that a steady engine-tender connection be employed. » » » Franklin E-2 Radial Buffers were installed to maintain the steadiest possible connection between engine and tender, effectively dampen oscillation, and prevent lost motion and subsequent destructive shocks to drawbar and pins. » » » Modernize *your* old power with the E-2 Radial Buffer and its twin, the Franklin Automatic Compensator & Snubber; improve riding conditions and eliminate excessive vibration and resultant high maintenance costs.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK
CHICAGO
MONTREAL

tion of the commission and to evidence the payment of $495,100 of interest on income bonds of the Chicago & Erie. The certificate will bear interest at the rate of 1½ per cent and will mature December 31, 1941, or on the effective date of any duly authorized plan of reorganization for this company should that date be prior to December 31, 1941.

ILLINOIS CENTRAL.—*Pledge of Bonds.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to pledge and repledge from time to time, to and including May 31, 1944, as additional security for loans totaling $35,170,000 from the Reconstruction Finance Corporation, $13,447,000 of refunding mortgage bonds.

PACIFIC COAST. — *Promissory Note.* — This company has applied to the Interstate Commerce Commission for authority to issue a 25-year six per cent promissory note in the amount of $1,370,000 to be delivered to its parent corporation—the Pacific Coast Company—for the purpose of retiring and refunding a like amount of first mortgage bonds matured and unpaid. The applicant proposes to execute a chattel mortgage upon its real and personal property as security for the note.

ST. LOUIS SOUTHWESTERN.—*Abandonment by the St. Louis Southwestern of Texas.*—The St. Louis Southwestern of Texas has been authorized by Division 4 of the Interstate Commerce Commission to abandon its Hillsboro branch extending from Corsicana, Tex., to Hillsboro, 40 miles.

SOUTHERN INDIANA.—*Acquisition.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to acquire and operate a line extending from Speed, Ind., southerly to a connection with the Baltimore & Ohio at Watson Junction, 7.4 miles. The authority was granted with the express condition that within 30 days from and after the date of the order the Southern Indiana shall tender to the B. & O. a 10-year option to acquire control of the Southern Indiana, or its properties upon fair and reasonable terms, subject to the approval of the commission.

PENNSYLVANIA.—*Annual Report.*—This road in 1939 earned a net income of $32,032,525, an increase of $20,986,425 compared with the preceding year. Excerpts from the income statement follow:

	1939	Compared With 1938
Operating Revenues	$430,930,778	+$70,546,537
Operating Expenses	306,900,835	+ 49,853,592
Net Revenue	124,029,943	+ 20,692,945
Taxes	40,095,847	+ 2,870,519
Railway Operating Income	83,934,096	+ 17,822,426
Hire of equipment and joint facility rents	6,629,768	− 2,149,004
Net Railway Operating Income	77,304,328	+ 19,971,430
Non-Operating Income*	36,864,230	+ 638,050
Gross Income	114,168,558	+ 20,609,480
Fixed Charges**	82,136,033	− 376,945
Net Income	32,032,525	+ 20,986,425
Appropriations to Sinking and Other Funds, etc.	8,854,839	+ 819,520
Surplus	23,177,686	+ 20,166,905
Dividend of 2% ($1.00 per share) paid Dec. 18, 1939	13,167,754	+ †6,583,877
Transferred to credit of Profit and Loss	$10,009,932	

* Chiefly dividends and interest on securities owned.
**Chiefly rentals paid to leased roads, and interest on the company's debt.
† 1% (50¢ per share) paid in 1938 and charged to Profit and Loss.

Average Prices of Stocks and Bonds

	Feb. 20	Last week	Last year
Average price of 20 representative railway stocks	59.28	59.45	61.10
Average price of 20 representative railway bonds	31.94	31.94	30.35

Dividends Declared

Bangor & Aroostook.—5 Per Cent Conv. Preferred, $1.25, payable April 1 to holders of record March 11.

Delaware & Bound Brook.—$2.00, quarterly, payable February 20 to holders of record February 13.

Detroit Hillsdale & Southwestern.—$2.00, semi-annually, payable July 5 to holders of record June 20.

Erie & Pittsburgh.—87½¢, quarterly, payable March 9 to holders of record February 29.

Virginian.—Initial (new stock), 62½¢, payable March 26 to holders of record March 16.

* * * *

Photo by Collons

Union Pacific Train No. 15 Ready to Go at Omaha's Modern Union Station

Railway Officers

EXECUTIVE

Gustav Metzman, whose promotion to assistant vice-president on the New York Central, with headquarters at Chicago, was announced in the *Railway Age* of January 27, was born at Baltimore, Md., on June 23, 1886, and entered railway service with the Baltimore & Ohio on June 3, 1903, serving in various positions. He was supervisor of transportation with the Eastern Freight Accumulation Conference from March 18 to July 1, 1916, and from the latter date until February 1, 1917, he was supervisor of transportation with the Eastern Presidents Conference. He then became supervisor of passenger transportation for the Baltimore & Ohio. Mr. Metzman was on the staff of the Regional director, Eastern region, United States Railroad Administration from January 1, 1918, until February 1, 1920, at which time he was appointed chief car distributor on the Baltimore & Ohio. On March 16, 1920, Mr. Metzman entered the service of the New York Central as transportation assistant to the senior vice-president. He was promoted to the position of transportation assistant to the president on March 1, 1922, and on January 1, 1929, he was advanced to manager of freight transportation, with headquarters at New York, the position he held until his recent promotion, effective February 1.

John W. Wheeler, whose appointment as executive assistant of the Burlington Lines, with headquarters at Chicago, was announced in the *Railway Age* of February 17, was born at Crown Point, Ind., on May 31, 1893, and graduated in civil engineering from Purdue University in 1916. On May 20, 1916, he entered highway service as project engineer for the highway department of Vermillion County, Danville, Ill. After several years in highway engineering and contracting work, he was appointed State Highway Commissioner of Indianapolis on February 14, 1933. On January 15, 1937, he was made engineer of highway negotiations of the C. B. & Q., with headquarters at Chicago, and in November, 1938, he was promoted to assistant chief engineer of the Burlington Lines. He resigned on May 11, 1939, to engage in contracting work. His appointment to executive assistant was effective February 15. Mr. Wheeler was also chairman of the Indiana State Planning Board from 1934 to 1938, and has been a director of the Chicago Regional Planning Association since 1934, and a member of the Board of Trustees of Purdue University since 1934.

FINANCIAL, LEGAL AND ACCOUNTING

W. M. Crane, chief clerk to the auditor of freight claims of the Baltimore & Ohio, has been appointed auditor of freight claims with headquarters at Baltimore, Md. Mr. Crane was born on April 26, 1878, in Baltimore, and has been in the service of the

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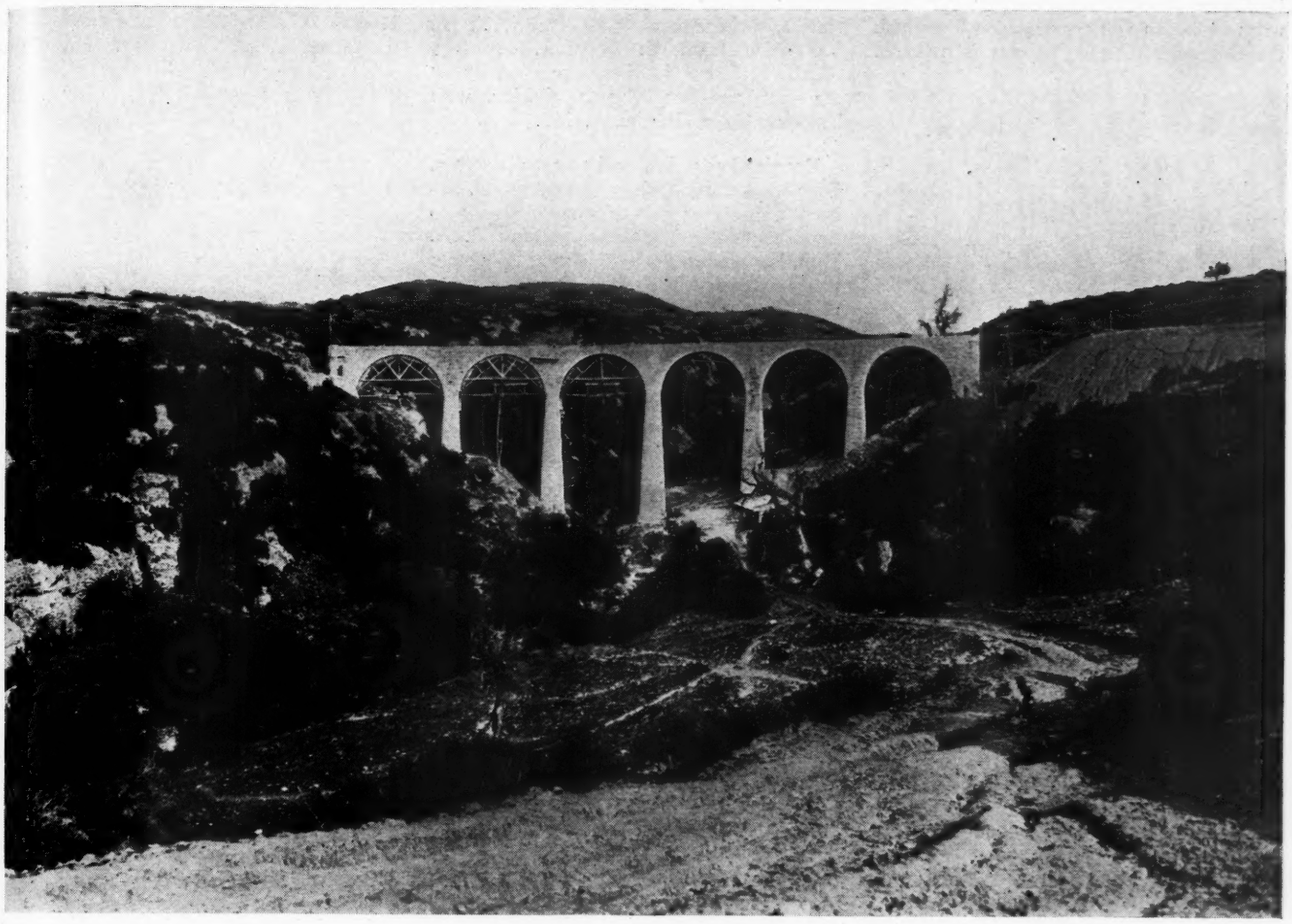
NO. 111 OF A SERIES OF FAMOUS ARCHES OF THE WORLD



KALONERO VIADUCT
GREECE

This 305 ft. structure was built by the Greek Railways to link the stations of Zevgolatio and Kalonero, in the south of Greece. The viaduct, which is built on a curve of 459 ft. radius, is one of the most graceful in southeastern Europe and is constructed in six arches of 41 ft. diameter at a rail-level height of 66 ft. in the center. The Greek Railways are at present expanding rapidly and bridge building is to the fore in the improvement program.

* * * * * * * *

American Railroads, too, have had their years of expansion, and the Security Sectional Arch has kept pace with each progressive step, until today it is the standard for locomotive fireboxes. To realize the true fuel economies that may be secured from your Security Sectional Arch be sure that every arch brick is in place before your locomotives leave the roundhouse.

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Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED
60 EAST 42nd STREET, NEW YORK, N. Y.
Locomotive Combustion Specialists

Baltimore & Ohio since August 15, 1895, when he began work at Camden Terminal. On December 3, 1900, he was transferred

W. M. Crane

to the freight claim department as a clerk, becoming chief clerk to the auditor of freight claims on December 16, 1915, which position he held until his recent promotion.

Horace H. Powers, whose appointment as general attorney of the Canadian National in the United States was announced in the *Railway Age* of February 17, is a graduate of the University of Vermont and Harvard Law School. Mr. Powers practiced law in New York from 1921 to 1925, when he joined the Central Vermont as attorney. He is a member of the following bars: The Supreme Court of the United States; the Supreme Court of Vermont; the Court of Appeals in New York; United States Circuit Court of Appeals for the Second Circuit; United States District Court of Vermont. He is admitted to practice before the Interstate Commerce Commission and the United States Treasury Department and recently

Horace H. Powers

completed a term as chairman of the Vermont Bar Association's committee on professional conduct.

OPERATING

Charles Benton, special representative of the Railway Express Agency, at Philadelphia, Pa., has been appointed superintendent of the Eastern New York division, with headquarters at Albany, N. Y., succeeding **Paul T. Webber,** who has been transferred in the same capacity to the Maryland-Pennsylvania division, with headquarters at Baltimore, Md.

Frank Over, Jr., assistant trainmaster, Delmarva division of the Pennsylvania, has been transferred in the same capacity to the New York division, succeeding **R. A. Dennis,** whose appointment to assistant trainmaster, Wilkes-Barre division, was noted in the *Railway Age* of February 17. **T. F. Schaekel,** yardmaster, Sandusky, Ohio, succeeds Mr. Over as assistant trainmaster, Delmarva division. **J. K. Marple,** employed in the office of the superintendent of passenger transportation, has been appointed assistant trainmaster of the Maryland division.

James C. Bailey, whose appointment as assistant general superintendent of the Bessemer & Lake Erie, with headquarters at Greenville, Pa., was announced in the

James C. Bailey

Railway Age of February 3, was born on June 9, 1883, at Meadville, Pa., and attended State Normal School at Edinboro, Pa. Mr. Bailey entered railroad service on February 27, 1902, as a telegraph operator with the Bessemer & Lake Erie. From May 1, 1904, to November 6, 1906, he was employed as a clerk, and from the latter date to November 1, 1917, he served as a timekeeper. Mr. Bailey was appointed car service agent on November 1, 1917, and assistant to general superintendent on July 1, 1933, which position he relinquished on February 1, 1940, to become assistant general superintendent.

William Homer Tobey, whose appointment as general manager of the Pacific Great Eastern with headquarters at Vancouver, B. C., was announced in the *Railway Age* of February 17, was born on January 15, 1880, at North Berwick, Me., and attended Brown University. After serving as a rodman with Aspinall & Lincoln, Civil Engineers, Boston, Mass., and as transitman with the Hudson River Water Power Company, in New York State, Mr. Tobey entered railway service in 1902 as a transitman on the Wabash, in West Virginia. He held this position until 1904, when he became resident engineer of the Canadian Pacific. From 1906 to 1920 Mr. Tobey was employed by the Grand Trunk Pacific Ry. (now Canadian National), serving successively as resident engineer (1906 to 1910); assistant engineer (1910 to 1914); and resident engineer, maintenance of way, with headquarters at Prince Rupert, B. C., (1914 to 1920). In 1920 he was appointed division engineer, maintenance of way, on the Canadian National, with headquarters as before at Prince Rupert. In 1925 Mr. Tobey was appointed superintendent of that road at Prince Rupert, which position he held until his recent appointment.

Hors-have Studios

William Homer Tobey

TRAFFIC

H. H. Wilson has been appointed general agent of the Grand Trunk, with headquarters at New York.

C. H. Jacka, freight traffic agent on the Union Pacific at Portland, Ore., has been promoted to general agent at Aberdeen, Wash., succeeding **W. E. M. Schloeman.**

W. E. Hines, assistant general freight agent for the Akron, Canton & Youngstown and the Northern Ohio at Chicago, has been promoted to assistant freight traffic manager, a newly created position, with headquarters at Akron, Ohio. The position of assistant general freight agent at Chicago has been abolished.

W. D. Buchanan, assistant general agent of the Canadian Pacific, with headquarters at New York, has been appointed assistant general passenger agent at Vancouver, B. C. **H. A. Lee,** general agent, passenger department, with headquarters at Los Angeles, has been appointed assistant general passenger agent at Montreal, Que. **A. D. Macdonald,** general agent at Cincinnati, has been transferred in the same capacity to Los Angeles where he succeeds Mr. Lee. These appointments are effective March 1.

C. M. Biggs, district freight agent on the Southern Pacific at San Francisco, Cal., has been promoted to assistant general freight agent, with the same headquarters, and **P. P. Dougherty,** district freight agent at Oakland, Cal., has been transferred to San Francisco, succeeding Mr. Biggs. **W. P. Jennings,** district

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- More steam generated in a given locomotive boiler
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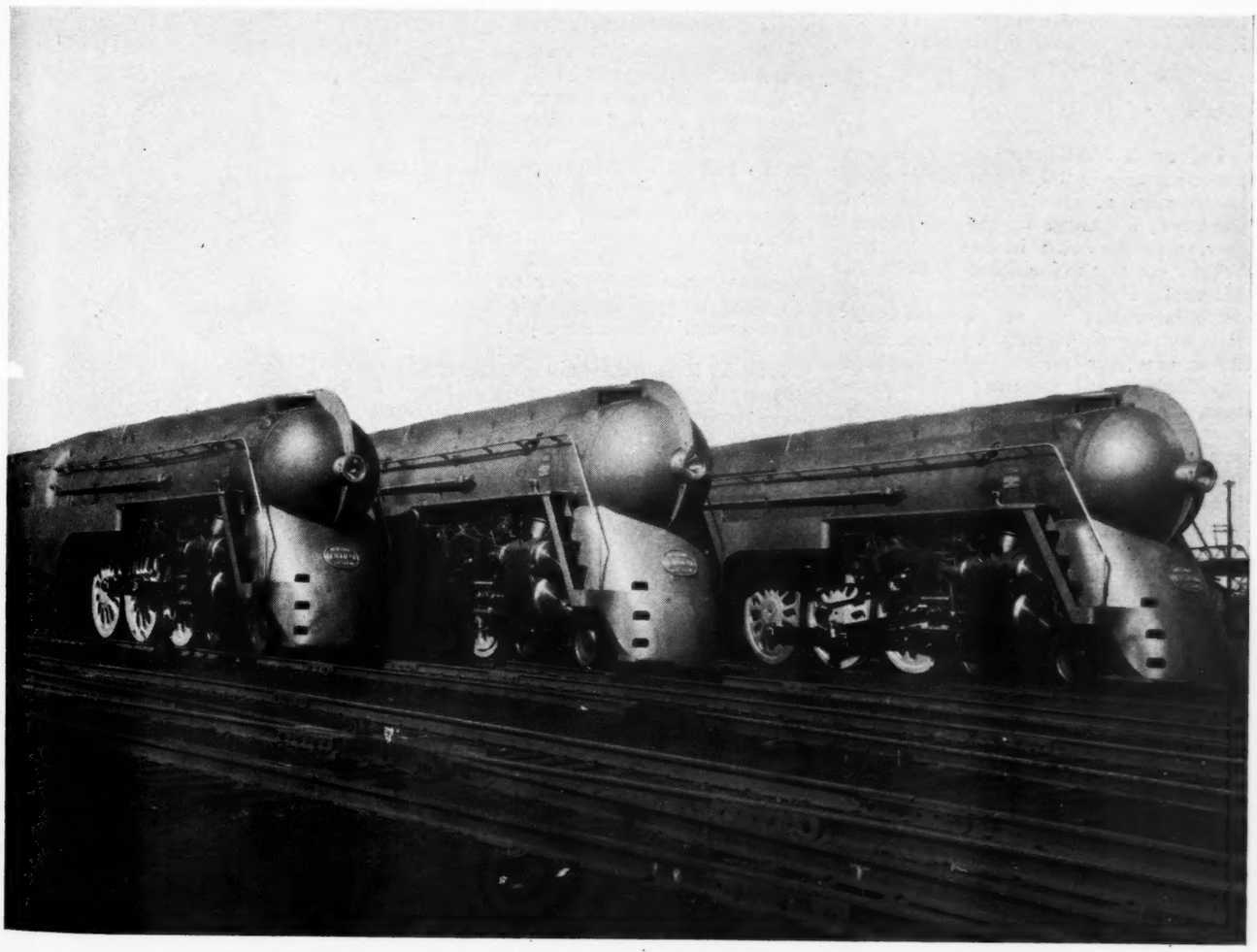
These improvements, necessary to produce more power within given limitations, are realized in the application of Elesco Type "E" superheaters.

Specify Elesco Type "E" superheaters for your new locomotives if you want maximum power within given limitations.



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freight and passenger agent at Fresno, Cal., has been appointed district freight agent at Oakland, relieving Mr. Dougherty.

Festus Aubrey Bailey, whose promotion to assistant freight traffic manager on the Southern, with headquarters at Memphis, Tenn., was announced in the *Railway Age* of February 10, was born at Martin, Tenn., on August 25, 1892, and entered railway service on April 1, 1913, as a correspondence clerk in the general freight office of the Southern at Birmingham, Ala., later serving in various clerical capacities at Selma, Ala., Mobile and Atlanta, Ga. On August 15, 1917, he was appointed quotation clerk in the office of the freight traffic manager at Washington, D. C., later serving successively as rate clerk, assistant chief clerk and chief clerk in that office. Mr. Bailey was promoted to assistant general freight agent at Atlanta on December 1, 1924, and on August 1, 1925, he was appointed division freight agent at Columbia, S. C. On July 1, 1936, he was again advanced to assistant general freight agent at Atlanta, and on October 1, 1937, he was appointed assistant general freight and passenger agent at Macon, Ga., the position held until his promotion on February 1.

LeRoy T. Wilcox, assistant freight traffic manager on the Union Pacific, with headquarters at Omaha, Neb., has been promoted to general freight traffic manager, with the same headquarters. Mr. Wilcox succeeds to the duties of **Rolla R. Mitchell,** freight traffic manager, whose death on January 29, was announced in the *Railway Age* of February 3. **W. S. Basinger,** passenger traffic manager, has been appointed general passenger traffic manager, a newly created position, with headquarters as before at Omaha. **E. J. Hanson** and **Ambrose J. Seitz,** assistant freight traffic managers at Omaha, have been promoted to freight traffic manager, with the same headquarters, and with the duties of that office divided between them. **W. T. Burns,** assistant freight traffic manager, with headquarters at Chicago, has been appointed freight traffic manager, with the same headquarters, a newly created position. **C. J. Collins,** assistant passenger traffic manager, has been promoted to passenger traffic manager, with headquarters as before at Omaha. **H. E. Lounsbury,** assistant traffic manager at Portland, Ore., **A. V. Kipp,** assistant traffic manager at Los Angeles, Cal., **W. T. Price,** assistant traffic manager at Denver, Colo., **W. H. Olin,** assistant traffic manager at San Francisco, Cal., **H. L. Lauby,** assistant traffic manager at Salt Lake City, Utah, and **A. R. Malcolm,** assistant traffic manager at Detroit, Mich., have been appointed traffic managers, with the same headquarters. A biographical sketch of Mr. Seitz, accompanied by a photograph, was published in the *Railway Age* of February 10, following his promotion to assistant freight traffic manager on February 1.

Frank C. Nelson, whose promotion to assistant to the freight traffic manager, in charge of rates and divisions on the Pacific lines of the Southern Pacific, with headquarters at San Francisco, Cal., was announced in the *Railway Age* of February 10, was born at San Francisco on August 2, 1892, and entered railway service on December 24, 1908, in the office of the auditor of freight accounts of the Southern Pacific. In 1917, he joined the U. S. Army and served overseas as a 1st lieutenant in the field artillery, returning in May, 1919, to a position in the office of the auditor of freight accounts. A year later he was transferred to the freight traffic department, where he served in various capacities until August 1, 1934, when he was promoted to assistant general freight agent, with headquarters at San Francisco, the position he held until his recent promotion on February 1.

Frank C. Nelson

John L. Fielding, whose promotion to assistant freight traffic manager on the Southern Pacific, lines in Texas and Louisiana, with headquarters at Houston, Tex., was announced in the *Railway Age* of February 10, was born at Denver, Colo., on May 2, 1886, and entered railway service in 1909 as a stenographer-clerk in the maintenance of way department of the Union Pacific. He later served in that capacity in the office of the division superintendent of the Southern Pacific at Dunsmuir, Cal., in the office of the chief engineer of the Denver & Rio Grande Western at Denver, Colo., and in the office of the division superintendent of the D. & R. G. W. at Salida, Colo. In 1913, he went with the Colorado & Southern as a rate clerk at Denver, Colo., later being advanced to head rate clerk and head of the tariff publishing department. In 1920, Mr. Fielding returned to the Southern Pacific, as head rate clerk at Tucson, Ariz., and two years later was transferred to Los Angeles, Cal. In 1924, he was promoted to assistant general freight agent at El Paso, Tex., and in 1926, he was transferred to San Francisco, Cal. He was further advanced to assistant to freight traffic manager at that point in 1933, the position he held until his promotion on February 1.

John L. Fielding

John E. Whitney, whose appointment as eastern traffic manager of the Illinois Central, with headquarters at New York, was announced in the *Railway Age* of February 3, was born September 17, 1879, at Astoria, N. Y. He started his railroad career on July 1, 1895 in the general freight office of the Erie at New York, remaining with that road until January 31, 1905, when he entered the employ of the Bush Terminal Company at New York. On January 15, 1911, he went with the Illinois Central as chief clerk also at New York. On July 15, 1913, he was appointed contracting freight agent, and on July 1, 1917, because of war conditions, entered the employ of E. J. Lavino & Co., in Rio de Janeiro, Brazil. Mr. Whitney rejoined the Illinois Central on March 1, 1920, as commercial agent at New York. On December 1, 1922, he was appointed New England agent at Boston, Mass., and on March 16, 1927, was appointed general eastern agent, with headquarters at New York, which position he held until his recent appointment as eastern traffic manager.

Blackstone Studios, Inc.

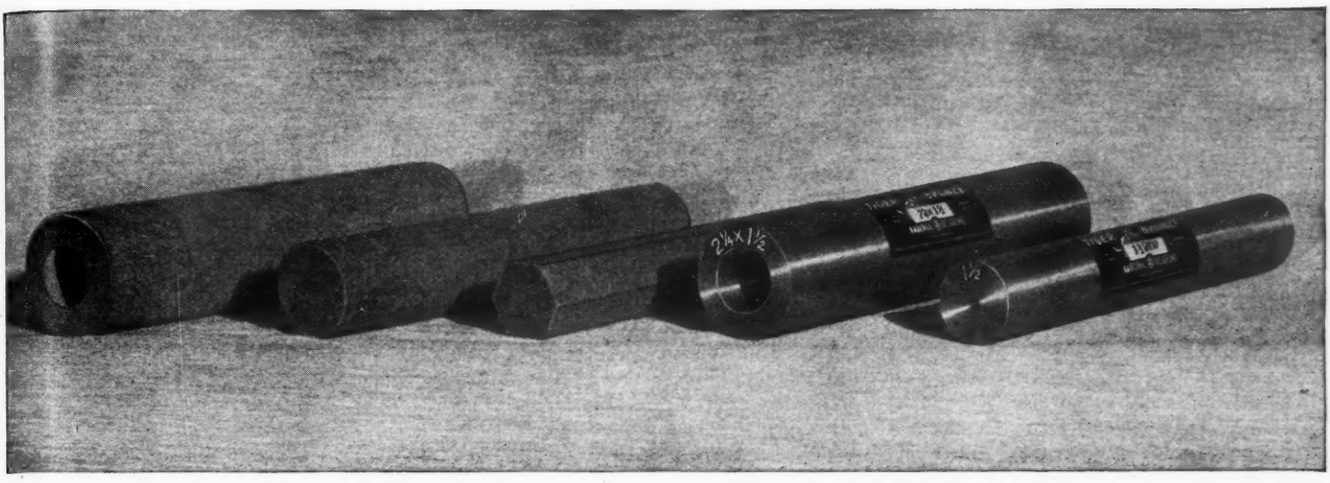
John E. Whitney

ENGINEERING AND SIGNALING

E. M. M. Hill, whose promotion to chief engineer of the Western region of the Canadian National, with headquarters at Winnipeg, Man., was announced in the *Railway Age* of February 17, was born at Guelph, Ont., in 1882, and entered railway service in 1903, as a rodman on the Canadian Northern (now part of the Canadian National). He served in various engineering positions, principally on loca-

Continued on next left-hand page

"TIGER" BRONZE



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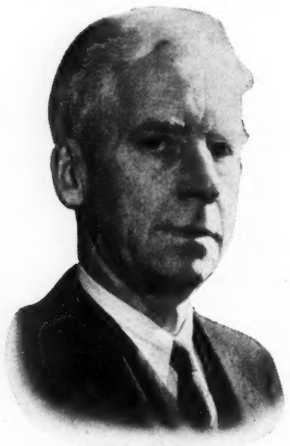
tion and construction work, until the World War when he served for two years with the Royal Engineers. Upon his return, he re-entered railway service in the engineering department on the Western lines of the Canadian National. In the spring of 1931,



E. M. M. Hill

Mr. Hill was appointed reconnaissance engineer of the Western region, with headquarters at Winnipeg, and in May, 1932, he was appointed engineer of construction of the Western region. His title was later changed to engineer of construction and right of way, the position he held until his recent promotion.

R. E. Coughlan, whose promotion to engineer of tests of the Chicago & North Western, with headquarters at Chicago, was announced in the *Railway Age* of February 17, was born in Madison, Wis., on October 22, 1891, and graduated from Northwestern University in 1911. He entered railway service after graduation in the chemical laboratory of the North Western, and early in 1912, he was promoted to fuel oil inspector at Casper, Wyo. In May, 1915, he was transferred to the Pittsburgh district as material in-

R. E. Coughlan

spector and during the World War he was slated for water supply work with the 13th engineers, but due to extreme difficulty with locomotive operation, due to water conditions, was withheld from service at the request of the superintendent of motive power. In 1922, he was appointed supervisor of water supply, with headquarters at Chicago, which position he held until February 15. Mr. Coughlan has been an active member of the American Railway Engineering Association, being chairman of the sub-committee on corrosion and the representative of this association on the executive committee of National Feed Water Studies.

MECHANICAL

August Thomas, general foreman on the Canadian Pacific at Moose Jaw, Sask., has been promoted to master mechanic, with the same headquarters, succeeding **C. F. Deno,** who has been transferred to Regina, Sask. Mr. Deno replaces **N. R. Crump,** who has been appointed chief draftsman in the motive power and car department at Winnipeg, Man.

B. H. Smith, master mechanic on the Chicago, Rock Island & Pacific at Des Moines, Iowa, has been promoted to superintendent of motive power of the Second district, with headquarters at Kansas City, Mo., succeeding **S. E. Mueller,** who has been appointed master mechanic at Cedar Rapids, Iowa. Mr. Mueller replaces **H. C. McCullough,** who has been transferred to Silvis, Ill., relieving **C. E. Farley,** who has been transferred to Des Moines, succeeding Mr. Smith.

SPECIAL

W. B. Jones, superintendent of special service of the Southern district of the Western lines of the Atchison, Topeka & Santa Fe, has been appointed superintendent of special service of the Western lines and the Panhandle & Santa Fe, with headquarters as before at Amarillo, Tex. The positions of superintendent of special service for the Northern and Southern districts of the Western lines have been abolished.

OBITUARY

E. R. Gardner, chief traffic officer of the Mobile & Ohio, with headquarters at St. Louis, Mo., died suddenly of a cerebral hemorrhage in that city on February 19.

Fred E. Gary, president of the Greenville & Northern, with headquarters at Chicago, died of uremic poisoning in Phoenix, Ariz., on February 19.

W. O. Tracy, general superintendent of the Western General division of the Norfolk & Western with headquarters at Bluefield, W. Va., died on February 8 at the age of 54. Mr. Tracy was born on May 25, 1885, in Winchester, Ky., and was educated at Kentucky University. He began his railroad career with the Norfolk & Western on November 17, 1905, as a rodman in the engineering department on the Pocahontas division. In November, 1907, he was appointed inspector on the Norfolk division, and became transitman in 1911. In 1913, he was appointed assistant resident engineer on the Pocahontas division. He later served as resident engineer on the Radford division, and in September, 1919, was promoted to assistant superintendent of the Pocahontas division. He was appointed superintendent of the Pocahontas division on May 1, 1931, the position he held until his appointment as general superintendent of the Western General division in 1936.

A. F. Blaess, who retired on May 1, 1938, as chief engineer of the Illinois Central, with headquarters at Chicago, died on February 19, at Gulfport, Miss., following a stroke suffered three days previously. Mr. Blaess was born at Ann Arbor, Mich.,

A. F. Blaess

on January 6, 1871, and graduated in civil engineering from the University of Michigan in 1895. His first railway connection was with the Detroit & Mackinac, which company he left in June, 1897, to go with the Illinois Central as a track apprentice. After several months in this capacity he was made a rodman, later serving as a transitman. In 1900, he was made a resident engineer and after a year in this capacity he was promoted to assistant engineer. From 1902 to 1905, Mr. Blaess served as a track supervisor, and in the latter year he was further promoted to roadmaster. After five years in this capacity he was made assistant engineer maintenance of way, and in 1913 he was appointed district engineer. In the following year he was promoted to engineer maintenance of way and held this position for 11 years. He has served as chief engineer since 1925. During his period of service as chief engineer, Mr. Blaess had supervision over a number of major engineering projects, including the construction of the 169-mile Edgewood cut-off, the building of the Bonne Carre Spillway bridges of the Illinois Central and the Yazoo & Mississippi Valley, the reconstruction of the south approach to the Ohio River bridge at Cairo, Ill., the construction of the company's extensive locomotive repair facilities at Paducah, Ky., and the prosecution of an extensive track elevation project at Jackson, Miss. For many years, he has been active in the affairs of the American Railway Engineering Association, serving as a director from 1924 to 1926, and treasurer from March, 1930 to March, 1938. He also served on eight different committees of the A. R. E. A. and was vice-chairman of the Committee on Rail from March, 1929 to March, 1938.

Operating Revenues and Operating Expenses of Class I Steam Railways

Compiled from 134 Monthly Reports of Revenues and Expenses Representing 138 Class I Steam Railways

(Switching and Terminal Companies Not Included)

FOR THE MONTH OF DECEMBER, 1939 AND 1938

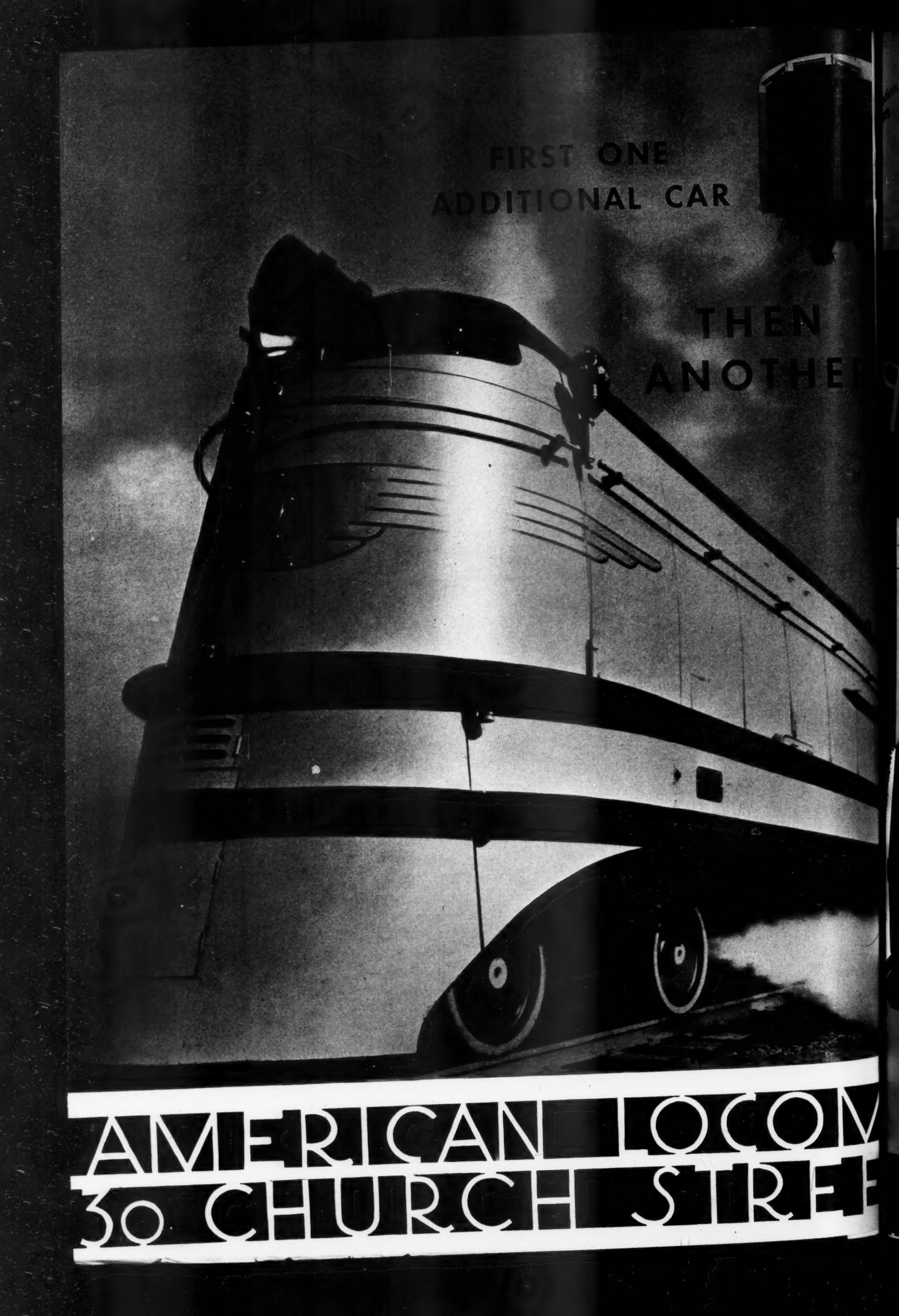
Item	United States		Eastern District		Southern District		Western District	
	1939	1938	1939	1938	1939	1938	1939	1938
Miles of road operated at close of month	233,169	233,842	57,448	57,647	44,388	44,540	131,333	131,655
Revenues:								
Freight	$276,272,295	$251,304,385	$122,398,725	$104,022,209	$55,716,719	$52,110,226	$98,156,851	$95,171,950
Passenger	37,815,969	37,876,164	21,011,932	21,398,869	5,457,841	5,080,065	11,346,196	11,397,230
Mail	10,977,594	10,600,241	4,098,864	3,985,136	1,774,243	1,743,463	5,104,487	4,871,642
Express	5,731,733	5,151,766	2,354,755	1,721,968	1,079,784	1,351,651	2,297,194	2,078,147
All other operating revenues	14,449,361	13,348,460	7,327,411	6,621,214	1,895,826	1,818,012	5,226,124	4,909,234
Railway operating revenues	345,246,952	318,281,016	157,191,687	137,749,396	65,924,413	62,103,417	122,130,852	118,428,203
Expenses:								
Maintenance of way and structures	35,285,383	31,352,097	14,671,753	12,398,062	7,002,607	5,792,337	13,611,023	13,161,698
Maintenance of equipment	66,303,933	60,318,603	31,970,683	26,908,034	12,249,085	11,281,643	22,084,165	22,128,926
Traffic	9,237,000	8,744,987	3,354,505	3,122,534	1,806,461	1,742,847	4,076,034	3,879,606
Transportation—Rail line	124,684,120	118,580,975	58,152,900	53,513,655	21,142,877	20,131,264	45,388,343	44,936,056
Transportation—Water line	525,993	402,555	.....	.....	.....	.....	525,993	402,555
Miscellaneous operations	3,283,196	3,180,864	1,508,208	1,448,998	471,290	410,521	1,303,698	1,321,345
General	10,220,686	10,605,309	4,030,993	4,305,188	2,039,147	2,043,053	4,150,546	4,257,068
Transportation for investment—Cr.	527,492	565,931	176,041	204,250	71,153	32,688	280,298	328,993
Railway operating expenses	249,012,819	232,619,459	113,513,001	101,492,221	44,640,314	41,368,977	90,859,504	89,758,261
Net revenue from railway operations	96,234,133	85,661,557	43,678,686	36,257,175	21,284,099	20,734,440	31,271,348	28,669,942
Railway tax accruals	24,315,298	26,610,407	9,996,502	11,243,928	5,035,803	6,091,169	9,282,993	9,275,310
Railway operating income	71,918,835	59,051,150	33,682,184	25,013,247	16,248,296	14,643,271	21,988,355	19,394,632
Equipment rents—Dr. balance	7,654,522	7,315,362	3,890,291	3,549,619	191,870	364,275	3,572,361	3,401,468
Joint facility rent — Dr. balance	3,311,199	2,316,933	2,129,366	1,232,765	403,269	301,965	778,564	782,203
Net railway operating income	60,953,114	49,418,855	27,662,527	20,230,863	15,653,157	13,977,031	17,637,430	15,210,961
Ratio of expenses to revenues (per cent)	72.1	73.1	72.2	73.7	67.7	66.6	74.4	75.8
Depreciation included in operating expenses	16,685,058	16,564,856	7,207,717	7,087,729	3,300,905	3,206,292	6,176,436	6,270,835
Pay roll taxes	9,034,092	8,403,316	4,133,027	3,554,162	1,623,205	1,520,513	3,277,860	3,328,641
All other taxes	15,281,206	18,207,091	5,863,475	7,689,766	3,412,598	4,570,656	6,005,133	5,946,669

FOR TWELVE MONTHS ENDED WITH DECEMBER, 1939 AND 1938

Miles of road operated at close of month†	233,468	234,436	57,560	57,860	44,461	44,656	131,447	131,920
Revenues:								
Freight	$3,251,096,141	$2,857,899,307	$1,348,810,998	$1,119,552,498	$651,372,537	$581,449,116	$1,250,912,606	$1,156,897,693
Passenger	416,916,864	405,424,288	232,389,788	223,734,456	53,474,157	53,216,778	131,052,919	128,473,054
Mail	99,012,370	95,954,093	37,893,602	36,564,030	16,917,735	16,623,356	44,201,033	42,766,707
Express	55,189,590	48,454,746	22,933,684	17,637,004	11,035,003	10,202,510	21,220,903	20,615,232
All other operating revenues	172,855,978	157,097,117	84,150,826	76,689,749	21,298,269	20,375,608	67,406,883	60,031,760
Railway operating revenues	3,995,070,943	3,564,829,551	1,726,178,898	1,474,177,737	754,097,701	681,867,368	1,514,794,344	1,408,784,446
Expenses:								
Maintenance of way and structures	466,833,402	420,088,057	177,082,150	153,360,331	83,294,079	76,488,714	206,457,173	190,239,012
Maintenance of equipment	765,942,665	676,374,537	339,832,637	282,329,844	145,713,407	131,039,049	280,396,621	263,005,644
Traffic	106,734,573	102,526,398	38,685,503	37,239,151	20,209,103	19,519,103	47,839,967	45,768,144
Transportation—Rail line	1,412,650,091	1,356,324,629	637,442,179	595,866,445	236,900,862	228,735,676	538,307,050	531,722,508
Transportation—Water line	5,138,914	4,717,281	.....	.....	.....	.....	5,138,914	4,717,281
Miscellaneous operations	37,711,138	37,502,275	16,337,296	16,571,501	4,577,310	4,438,797	16,796,532	16,491,977
General	127,569,895	127,501,411	50,660,773	50,690,418	24,373,279	24,262,197	52,535,843	52,548,796
Transportation for investment—Cr.	4,364,687	3,540,103	701,387	760,200	672,406	511,560	2,990,894	2,268,343
Railway operating expenses	2,918,215,991	2,721,494,485	1,259,339,151	1,135,297,490	514,395,634	483,971,976	1,144,481,206	1,102,225,019
Net revenue from railway operations	1,076,854,952	843,335,066	466,839,747	338,880,247	239,702,067	197,895,392	370,313,138	306,559,427
Railway tax accruals	355,766,155	340,694,548	149,887,512	143,518,938	74,452,175	69,256,321	131,426,468	127,919,289
Railway operating income	721,088,797	502,640,518	316,952,235	195,361,309	165,249,892	128,639,071	238,886,670	178,640,138
Equipment rents—Dr. balance	96,518,028	94,868,737	44,229,535	40,592,397	3,558,814	5,327,517	48,729,679	48,948,823
Joint facility rent — Dr. balance	35,769,876	34,621,142	19,790,414	18,585,589	3,841,525	3,887,789	12,137,937	12,147,764
Net railway operating income	588,800,893	373,150,639	252,932,286	136,183,323	157,849,553	119,423,765	178,019,054	117,543,551
Ratio of expenses to revenues (per cent)	73.0	76.3	73.0	77.0	68.2	71.0	75.6	78.2
Depreciation included in operating expenses	201,866,192	201,824,376	88,333,832	87,983,395	39,879,818	39,403,881	73,652,542	74,437,100
Pay roll taxes	105,585,478	99,150,169	45,719,560	41,551,038	18,518,947	17,642,654	41,346,971	39,956,477
All other taxes	250,180,677	241,544,379	104,167,952	101,967,900	55,933,228	51,613,667	90,079,497	87,962,812

† Represents an average of the mileage reported at the close of each month within the period.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.


FIRST ONE
ADDITIONAL CAR
THEN
AMERICAN LOCO
30 CHURCH STRE